Table of Contents

As filed with the Securities and Exchange Commission on October 7, 2016

Registration No. 333-213577

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

AMENDMENT NO. 1
TO
FORM S-1
REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

CRISPR THERAPEUTICS AG

(Exact name of Registrant as specified in its Charter)

Switzerland	2836	Not Applicable
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel
Switzerland
+41 61 228 7800
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

C T Corporation System
111 Eighth Avenue
New York, NY 10011
(212) 894-8800
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Mitchell S. Bloom **Robert E. Puopolo** **Seo Salimi** **Goodwin Procter LLP** **100 Northern Avenue** **Boston, MA 02210** **(617) 570-1000**	**Patrick O'Brien** **Paul Kinsella** **Ropes & Gray LLP** **Prudential Tower** **800 Boylston Street** **Boston, MA 02199** **(617) 951-7000**

Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒ (Do not check if a smaller reporting company)	Smaller reporting company	☐

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be registered(1)	Proposed maximum offering price per share(2)	Proposed maximum aggregate offering price(2)	Amount of registration fee(3)(4)
Common shares, nominal value CHF 0.03 per share	5,405,000	$17.00	$91,885,000	$10,649.48

(1) Includes 705,000 common shares that the underwriters have the option to purchase.
(2) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(a) under the Securities Act of 1933, as amended.
(3) Calculated pursuant to Rule 457(a) under the Securities Act of 1933, as amended, based on an estimate of the proposed maximum aggregate offering price.
(4) A registration fee of $9,063.00 was previously paid in connection with the Registration Statement, and the additional amount of $1,586.48 is being paid herewith.

The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Commission, acting pursuant to such Section 8(a), may determine.

Table of Contents

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION DATED OCTOBER 7, 2016

PRELIMINARY PROSPECTUS

4,700,000 Shares

CRISPR Therapeutics AG

Common Shares

This is the initial public offering of our common shares. We are selling 4,700,000 common shares. We currently expect the initial public offering price to be between $15.00 and $17.00 per common share.

We have granted the underwriters an option to purchase up to 705,000 additional common shares to cover over-allotments.

We have applied to have our common shares listed on the NASDAQ Global Market under the symbol "CRSP."

We are an "emerging growth company" as defined under the federal securities laws and, as such, will be subject to reduced public company reporting requirements. See "Prospectus Summary—Implications of Being an Emerging Growth Company."

Investing in our common shares involves risks. See "Risk Factors" beginning on page 11.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share	Total
Public Offering Price	$	$
Underwriting Discounts and Commissions(1)	$	$
Proceeds to CRISPR Therapeutics AG (before expenses)	$	$

(l) See "Underwriting" beginning on page 198 for additional information regarding total underwriter compensation.

Bayer Global Investments B.V., an existing shareholder and an affiliate of Bayer HealthCare LLC, our joint venture partner, has agreed to purchase from us concurrently with this offering in a private placement $35 million of our common shares at a price per share equal to the initial public offering price. See "Concurrent Private Placement."

The underwriters expect to deliver the shares to purchasers on or about , 2016 through the book-entry facilities of The Depository Trust Company.

Citigroup **Piper Jaffray** **Barclays**

Guggenheim Securities

, 2016.

TABLE OF CONTENTS

We are organized under the laws of Switzerland and our registered office and domicile is located in Basel, Switzerland. Moreover, certain of our directors and executive officers are not residents of the United States, and all or a substantial portion of the assets of such persons are located outside the United States. As a result, it may not be possible for investors to effect service of process within the United States upon us or upon such persons or to enforce against them judgments obtained in U.S. courts, including judgments in actions predicated upon the civil liability provisions of the federal securities laws of the United States. We have been advised by our Swiss counsel that there is doubt as to the enforceability in Switzerland of original actions, or of actions for enforcement of judgments of U.S. courts of civil liabilities to the extent solely predicated upon the federal and state securities laws of the United States. See "Enforcement of Judgments" for additional information.

Unless otherwise indicated or the context otherwise requires, all references in this prospectus to "CRISPR," the "Company," "we," "our," "ours," "us" or similar terms refer to CRISPR Therapeutics AG and its consolidated subsidiaries.

We own various trademark and unregistered trademarks, including CRISPR and our corporate logo. All other trade names, trademarks and service marks of other companies appearing in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus may be

referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend to use or display other companies' trademarks and trade names to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Our consolidated financial statements are presented in U.S. dollars in accordance with U.S. generally accepted accounting principles. In addition, we prepare statutory accounts in Swiss Francs in accordance with Swiss statutory law. The Swiss statutory accounting principles may materially differ from U.S. generally accepted accounting principles. The terms "dollar," "USD" or "$" refer to U.S. dollars and the term "Swiss Franc" and "CHF" refer to the legal currency of Switzerland, unless otherwise indicated.

You should rely only on the information contained in this prospectus or in any free writing prospectus prepared by us or on our behalf. We and the underwriters have not authorized anyone to provide any information other than that contained in this prospectus or in any free writing prospectus prepared by or on behalf of us or to which we may have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

Neither we nor the underwriters are making an offer to sell the common shares in any jurisdiction where the offer or sale is not permitted. This offering is being made in the United States and elsewhere solely on the basis of the information contained in this prospectus. You should assume that the information appearing in this prospectus is accurate only as of the date on the front cover of this prospectus, regardless of the time of delivery of this prospectus or any sale of the common shares. Our business, financial condition, results of operations and prospects may have changed since the date on the front cover of this prospectus. Information contained on our website is not a part of this prospectus. You are required to inform yourselves about, and to observe any restrictions relating to, this offering and the distribution of this prospectus outside of the United States.

SUMMARY

This summary highlights information contained elsewhere in this prospectus. This summary may not contain all the information that may be important to you, and we urge you to read this entire prospectus carefully, including the "Risk Factors," "Business" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections and our consolidated financial statements, including the notes thereto, included elsewhere in this prospectus, before deciding to invest in our common shares.

Our Business

Overview

We are a leading gene editing company focused on the development of CRISPR/Cas9-based therapeutics. CRISPR/Cas9 is a revolutionary technology for gene editing, the process of precisely altering specific sequences of genomic DNA. The application of CRISPR/Cas9 for gene editing was co-invented by one of our scientific founders, Dr. Emmanuelle Charpentier who, along with her collaborators, published work elucidating how CRISPR/Cas9, a naturally occurring viral defense mechanism found in bacteria, can be adapted for use in gene editing. We are applying this technology to treat a broad set of rare and common diseases by disrupting, correcting or regulating the disease related genes. We believe that our scientific expertise, together with our approach, may enable an entirely new class of highly active and potentially curative treatments for patients for whom current biopharmaceutical approaches have had limited success.

We are pursuing a two-pronged product development strategy using both *ex vivo* and *in vivo* approaches. Our most advanced programs in hemoglobinopathies use an *ex vivo* approach, whereby cells are harvested from a patient, treated with a CRISPR/Cas9-based therapeutic and reintroduced into the patient. Beyond these lead programs, we are pursuing a number of additional *ex vivo* applications, as well as select *in vivo* applications whereby the CRISPR/Cas9 therapeutic is delivered directly to target cells within the human body. Our initial *in vivo* applications will leverage well-established delivery technologies for gene-based therapeutics.

Given the numerous potential therapeutic applications for CRISPR/Cas9, we have partnered strategically to broaden the indications we can pursue and accelerate development of programs by accessing specific disease-area expertise. We have established a joint venture with Bayer AG and its subsidiaries in which we hold a 50% interest, and a collaboration agreement with Vertex Pharmaceuticals Incorporated, which together will provide over $400 million, subject to certain conditions, inclusive of estimated spending on funded programs, as well as access to distinctive capabilities, for the development of CRISPR/Cas9 gene editing product candidates. We have assembled a team with extensive experience in drug discovery and clinical development to successfully bring CRISPR/Cas9-based therapeutics to patients. We believe our highly experienced team, product development strategy, partnerships and intellectual property position us as a leader in the development of CRISPR/Cas9-based therapeutics.

Our Strategy

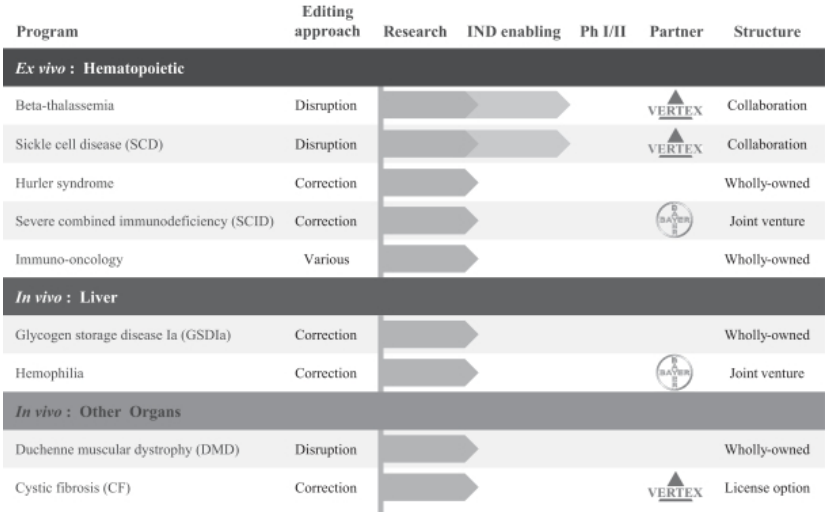
Our mission is to create transformative gene-based medicines for serious human diseases. Key components of our strategy to enable us to achieve this mission include:

- *Focus on the Hematopoietic System Through* Ex Vivo *Approaches.*
  - — Rapidly Advance Our Two Lead Programs in Hemoglobinopathies, Sickle Cell Disease and Beta-Thalassemia.
  - — Apply our Hematopoietic Gene Editing Capabilities in Other Indications.

- *Pursue Select Indications Requiring* In Vivo *Approaches.*
  - — Target the Liver Using Readily Available Delivery Technologies.
  - — Optimize Delivery Technologies to Target Select *In Vivo* Indications Outside the Liver.
- *Continue to Foster and Strategically Leverage Our Collaborations with Bayer and Vertex.*
- *Advance our Leading Position in the Field of Gene Editing.*

Our Pipeline

We have established a portfolio of programs by selecting disease targets based on a number of criteria, including high unmet medical need, advantages of CRISPR/Cas9 relative to alternative approaches, technical feasibility and the time required to advance the product candidate into and through clinical trials. We have initiated programs in three primary areas: (i) *ex vivo* programs involving gene editing of hematopoietic cells,
(ii) *in vivo* programs targeting the liver and (iii) additional *in vivo* programs targeting other organ systems, such as muscle and lung. The following table summarizes the current status of our product development pipeline:



Ex Vivo *Hematopoietic Programs*

We are primarily utilizing *ex vivo* approaches to treat diseases related to the hematopoietic system, which is the system of organs and tissues, such as bone marrow, the spleen and lymph nodes, involved in the production of blood. When a suitable donor can be found, many of the hematopoietic system diseases we are targeting are treated with allogeneic hematopoietic stem cell transplants, or allo-HSCT. Patients who undergo allo-HSCT face a high risk of complications such as infections related to immunosuppression, transplant rejection and graft-versus-host disease.

Our Lead Programs—Hemoglobinopathies

Hemoglobinopathies are a diverse group of inherited blood disorders that result from variations in the synthesis or structure of hemoglobin. Our lead programs in hemoglobinopathies aim to develop a single, potentially transformative CRISPR/Cas9-based therapy to treat both beta-thalassemia and sickle cell disease, or SCD. These diseases are caused by mutations in the gene encoding the beta globin protein. A number of factors make these attractive lead indications, including: (i) high unmet medical need, (ii) compelling market potential, (iii) well understood genetics and (iv) the ability to employ an *ex vivo* gene disruption strategy.

Beta-thalassemia is caused by mutations that give rise to insufficient expression of the beta globin protein, resulting in anemia requiring regular blood transfusions. SCD is an inherited disorder caused by a mutation in the beta globin gene resulting in abnormal red blood cells, which obstruct blood vessels, resulting in a variety of severe symptoms and early mortality. The total worldwide annual incidence of beta-thalassemia and SCD is estimated to be 60,000 and 300,000 births, respectively.

Our therapeutic approach to treating these diseases employs gene editing to upregulate the expression of the gamma globin protein, a hemoglobin subunit that is commonly present only in newborn infants. Hemoglobinopathy patients who maintain high levels of gamma globin throughout their life are asymptomatic or have mild diseases. We believe our *ex vivo* gene editing approach, utilizing the patient's own cells, will provide better safety and efficacy than all currently available treatments.

Other Hematopoietic Programs

There are numerous diseases that are potentially treatable through *ex vivo* gene editing of the hematopoietic system. We plan to apply the capabilities we are developing in hemoglobinopathies to treat other diseases. We have launched programs in two such diseases, severe combined immunodeficiency disease, or SCID, and Hurler syndrome, a genetic metabolic disorder. In addition, we are utilizing our *ex vivo* gene editing expertise to advance our efforts in cell therapies for immuno-oncology applications.

In Vivo *Programs*

We are pursuing a number of *in vivo* indications in parallel with our *ex vivo* programs, which will involve delivery of CRISPR/Cas9 therapeutics directly to target tissues within the human body. Our initial *in vivo* applications will target the liver, leveraging well-established delivery technologies. We intend to customize and use these delivery technologies for programs in hemophilia and genetic diseases of liver metabolism, including Glycogen Storage Disease Ia, or GSDIa.

We intend to optimize delivery technologies to target select *in vivo* indications outside the liver such as Duchenne muscular dystrophy and cystic fibrosis. We believe that our CRISPR/Cas9 gene editing technology is well suited to address these diseases, both of which have significant patient populations with high unmet medical need. We are working internally, as well as through third-party collaborations, to optimize viral and non-viral delivery technologies for use in these diseases.

Further Unlocking the Potential of Our CRISPR/Cas9 Platform

We are also working to optimize our CRISPR/Cas9 platform. Our key areas of focus are:

- *Optimizing the Cas9 Protein*: Reduce the size and potential immunogenicity of the Cas9 protein while improving specificity and efficiency.
- *Guide RNA Selection*: Combine bioinformatics and experimental assays to identify guide RNAs with high efficiency and no off-target cutting.

- *Delivery of CRISPR/Cas9 to Target Cells*: Develop next-generation delivery technologies to access additional organ systems.
- *Efficiency of Correction*: Achieve high efficiency of correction across all cell types and enable new therapeutic strategies.
- *Cellular Engineering*: Improve the *ex vivo* cell collection, manipulation and administration process for a variety of stem cell types.

Risks Associated with Our Business

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks are discussed more fully in the "Risk Factors" section of this prospectus immediately following this prospectus summary. These risks include the following:

- *We have incurred significant operating losses since our inception and anticipate that we will incur continued losses for the foreseeable future and we have never generated revenue from product sales and may never be profitable.*
- *We are very early in our development efforts. All of our product candidates are still in preclinical development and it will be many years before we or our collaborators commercialize a product, if ever.*
- *Our CRISPR/Cas9 gene editing product candidates are based on a new gene editing technology, which makes it difficult to predict the time and cost of development and of subsequently obtaining regulatory approval, if at all. There have only been a limited number of clinical trials of product candidates based on gene editing technology and no gene editing products have been approved in the United States or in the European Union.*
- *The FDA, the NIH and the EMA have demonstrated caution in their regulation of gene therapy treatments, and ethical and legal concerns about gene therapy and genetic testing may result in additional regulations or restrictions on the development and commercialization of our product candidates, which may be difficult to predict.*
- *Positive results from early preclinical studies of our product candidates are not necessarily predictive of the results of later preclinical studies and any future clinical trials of our product candidates. If we cannot replicate the positive results from our earlier preclinical studies of our product candidates in our later preclinical studies and future clinical trials, we may be unable to successfully develop, obtain regulatory approval for and commercialize our product candidates.*
- *Gene editing products are novel and may be complex and difficult to manufacture. We could experience manufacturing problems that result in delays in the development or commercialization of our product candidates or otherwise harm our business.*
- *Adverse public perception of gene editing and cellular therapy products may negatively impact demand for, or regulatory approval of, our product candidates.*
- *The commercial success of any of our product candidates will depend upon its degree of market acceptance by physicians, patients, third-party payors and others in the medical community.*
- *We face significant competition in an environment of rapid technological change and the possibility that our competitors may achieve regulatory approval before us or develop therapies that are more advanced or effective than ours, which may harm our business and financial condition, and our ability to successfully market or commercialize our product candidates.*

- *Our collaborators and strategic partners may control aspects of our clinical trials, which could result in delays and other obstacles in the commercialization of our proposed products and materially harm our results of operations.*
- *If we are unable to adequately protect our proprietary technology or obtain and maintain patent protection for the products we develop and for our technology and product candidates, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize any product candidates we may develop, and our technology may be adversely affected.*
- *Some of our in-licensed patent applications are subject to priority disputes and Inventorship disputes, including an active interference proceeding with The Broad Institute, Massachusetts Institute of Technology, President and Fellows of Harvard College in front of the United States Patent and Trademark Office. In addition, our owned and in-licensed patents and other intellectual property may be subject to further priority disputes or to inventorship disputes and similar proceedings. If we or our licensors are unsuccessful in any of these proceedings, we may be required to obtain licenses from third parties, which may not be available on commercially reasonable terms or at all, or to cease the development, manufacture, and commercialization of one or more of the product candidates we may develop, which could have a material adverse impact on our business.*
- *The intellectual property landscape around gene editing technology, including CRISPR/Cas9, is highly dynamic, and third parties may initiate legal proceedings alleging that the patents that we in-license or own are invalid or that we are infringing, misappropriating, or otherwise violating their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.*
- *Our status as a Swiss corporation means that our shareholders enjoy certain rights that may limit our flexibility to raise capital, issue dividends and otherwise manage ongoing capital needs.*

Concurrent Private Placement

Bayer Global Investments B.V., or Bayer BV, an existing shareholder and an affiliate of Bayer HealthCare LLC, our joint venture partner, has agreed to purchase from us concurrently with this offering in a private placement $35 million of our common shares at a price per share equal to the initial public offering price. See “Concurrent Private Placement.”

Series B Private Placement

In May 2015, we issued an aggregate of 4,519,016 Series B Preferred Shares at a purchase price of CHF 6.20 per share for gross proceeds of approximately CHF 28.0 million. In June 2016, we completed an additional private placement of Series B Preferred Shares, or the Series B Private Placement Extension. An aggregate of 2,834,252 Series B Preferred Shares were issued to certain new and existing investors at a purchase price of $13.43 per share for gross proceeds of approximately $38.1 million.

Corporate Information

We were incorporated as a Swiss stock corporation *(Aktiengesellschaft)* on October 31, 2013 under the name Inception Genomics AG. We changed our name to CRISPR Therapeutics AG on April 28, 2014. Our principal executive offices are located at Aeschenvorstadt 36, 4051 Basel, Switzerland and our telephone number is + 41 61 228 7800. Our website is www.crisprtx.com. Our website and the information contained therein or connected thereto are not incorporated into this prospectus or the registration statement of which it forms a part.

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced reporting and other burdens that are otherwise applicable generally to public companies. These provisions include:

- a requirement to have only two years of audited financial statements in addition to any required interim financial statements and correspondingly reduced disclosure in the Management's Discussion and Analysis of Financial Condition and Results of Operations disclosure in the registration statement of which this prospectus forms a part;
- reduced disclosure about our executive compensation arrangements; and
- an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting pursuant to the Section 404 of the Sarbanes-Oxley Act of 2002.

We may take advantage of these provisions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company upon the earliest to occur of (i) the last day of the fiscal year in which we have more than $1.0 billion in annual revenue; (ii) the date we qualify as a "large accelerated filer," with at least $700 million of equity securities held by non-affiliates; (iii) the issuance, in any three-year period, by our Company of more than $1.0 billion in non-convertible debt securities; and (iv) the last day of the fiscal year ending after the fifth anniversary of this offering. We may choose to take advantage of some but not all of these reduced burdens. For example, Section 107 of the JOBS Act provides that an emerging growth company can use the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended, or the Securities Act, for complying with new or revised accounting standards. However, we have irrevocably elected not to avail ourselves of the extended transition period for complying with new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

THE OFFERING	
Common shares offered by us	4,700,000 shares
Concurrent Private Placement	Bayer BV has agreed to purchase from us concurrently with this offering in a private placement $35 million of our common shares at a price per share equal to the initial public offering price, or 2,187,500 shares, assuming an initial public offering price of $16.00 per common share, which is the midpoint of the price range set forth on the cover page of this prospectus. We will receive the full proceeds from the sale and will not pay any underwriting discounts or commissions with respect to the common shares that are sold in the private placement. The sale of these common shares to Bayer BV will not be registered under the Securities Act of 1933, as amended, and these common shares will be subject to a 180-day lock-up agreement with the underwriters in this offering. We refer to the private placement of these common shares as the concurrent private placement.
Common shares to be outstanding immediately after this offering and the concurrent private placement	39,748,134 shares
Over-allotment option	705,000 shares
Use of proceeds	We estimate that the net proceeds to us from this offering, excluding the proceeds from the concurrent private placement, will be approximately $66.2 million, or approximately $76.7 million if the underwriters exercise their over-allotment option to purchase additional common shares in full, assuming an initial public offering price of $16.00 per common share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting underwriting discounts and commissions and estimated offering expenses payable by us. Our proceeds from the sale of common shares in the concurrent private placement will be approximately $35.0 million. We intend to use the net proceeds from this offering and the concurrent private placement to advance the development of our hemoglobinopathy programs, progress additional pipeline candidates, further optimize our CRISPR/Cas9 platform and for manufacturing, working capital and general corporate purposes. See “Use of Proceeds” for a more complete description of the intended use of proceeds from this offering and the concurrent private placement.
Risk factors	See “Risk Factors” and the other information included in this prospectus for a discussion of factors you should consider before deciding to invest in our common shares.
Directed Share Program	At our request, the underwriters have reserved up to 5% of the common shares for sale at the initial public offering price to persons

	who are directors, officers or employees, or who are otherwise associated with us through a directed share program. The number of common shares available for sale to the general public will be reduced by the number of directed shares purchased by participants in the program. Any directed shares not purchased will be offered by the underwriters to the general public on the same basis as all other shares offered. Individuals who purchase shares in the directed share program will be subject to the 180-day lock-up restrictions described in the "Underwriting" section of this prospectus. We have agreed to indemnify the underwriters against certain liabilities and expenses, including liabilities under the Securities Act, in connection with the sales of the directed shares.
Proposed NASDAQ Global Market symbol	"CRSP"

The number of our common shares to be outstanding after this offering and the concurrent private placement is based on 32,532,617 common shares outstanding as of June 30, 2016, including 134,047 issued but unvested restricted shares, but excludes:

- 2,709,572 of our common shares issuable upon the exercise of options outstanding under our 2015 Stock Option and Grant Plan, or the 2015 Stock Option Plan, as of June 30, 2016 at a weighted-average exercise price of $4.14 per common share;
- 7,271,779 of our common shares reserved for future issuance under our 2016 Stock Option and Incentive Plan, or the 2016 Stock Option Plan, which will become effective immediately prior to the completion of this offering; and
- 413,226 common shares reserved for issuance under our 2016 Employee Stock Purchase Plan, or ESPP, which will become effective immediately prior to the completion of this offering.

Unless otherwise indicated, all information contained in this prospectus reflects the completion of a 3 1/3-for-one share split and assumes:

- no issuance of any common shares reserved for future issuance under our 2016 Stock Option Plan or exercise of the options outstanding under our 2015 Stock Option Plan;
- the conversion of all 27,135,884 of our outstanding preferred shares into common shares on a one-for-one basis immediately prior to the closing of this offering;
- the issuance of 328,017 common shares to Dr. Emmanuelle Charpentier immediately prior to the closing of this offering pursuant to a call option agreement, dated March 20, 2015, between us and Dr. Emmanuelle Charpentier, or the Call Option Agreement;
- the filing and effectiveness of our amended articles of association and creation of authorized and conditional share capital of 31,724,612 common shares upon closing of this offering;
- the issuance and sale by us in the concurrent private placement of 2,187,500 common shares to Bayer BV, assuming an initial public offering price of $16.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus; and
- no exercise of the underwriters' over-allotment option to purchase up to 705,000 additional common shares.

SUMMARY CONSOLIDATED FINANCIAL DATA

The following summary consolidated historical financial data should be read in conjunction with "Selected Consolidated Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements, including the notes thereto, included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future and results of interim periods are not necessarily indicative of results for the entire year or any other interim period.

The summary consolidated income statement data for and as of the years ended December 31, 2015 and 2014 are derived from our audited consolidated financial statements included elsewhere in this prospectus. The consolidated statements of operations data for the six months ended June 30, 2015 and 2016 and the consolidated balance sheet data as of June 30, 2016 have been derived from our unaudited interim financial statements included elsewhere in this prospectus and have been prepared on the same basis as the audited financial statements. In the opinion of management, the unaudited data reflects all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information in those statements.

We maintain our books and records in, and our audited consolidated financial statements are prepared and presented in accordance with, U.S. generally accepted accounting principles.

	Year Ended December 31,		Six Months Ended June 30,	
	2014	2015	2015	2016
	(in thousands, except share and per share amounts)		(in thousands, except share and per share amounts)	
Statement of Operations Data:				
Collaboration revenue	$ —	$ 247	$ —	$ 1,271
Operating expenses:				
Research and development	1,513	12,573	2,650	14,614
General and administrative	5,114	13,403	4,711	14,867
Total operating expenses	6,627	25,976	7,361	29,481
Operating loss	(6,627)	(25,729)	(7,361)	(28,210)
Other (expense) income, net	(236)	(92)	(43)	2,680
Benefit from (provision for) income taxes	63	(7)	216	(76)
Net loss	(6,800)	(25,828)	(7,188)	(25,606)
Foreign currency translation adjustment	(2)	(6)	2	(17)
Comprehensive loss	$ (6,802)	$ (25,834)	$ (7,186)	$ (25,623)
Reconciliation of net loss to net loss attributable to common stockholders:				
Net loss	$ (6,800)	$ (25,828)	$ (7,188)	$ (25,606)
Loss attributable to noncontrolling interest	536	325	308	10
Loss on extinguishment of redeemable convertible preferred shares	(745)	—	—	—
Net loss attributable to common stockholders	$ (7,009)	$ (25,503)	$ (6,880)	$ (25,596)
Net loss per share attributable to common stockholders, basic and diluted	$ (1.97)	$ (5.06)	$ (1.52)	$ (4.66)
Weighted-average common shares outstanding, basic and diluted(1)	3,559,985	5,037,404	4,538,595	5,488,467
Pro-forma net loss per share, basic and diluted (unaudited)		$ (1.26)		$ (0.87)
Pro-forma weighted-average common shares outstanding, basic and diluted (unaudited)		20,241,365		29,297,808

(1) See Note 2 in the notes to our annual and interim consolidated financial statements, respectively, appearing at the end of this prospectus for a description of the method used to calculate basic and diluted net loss per share and pro forma basic and diluted net loss per share.

The table below presents our balance sheet data at June 30, 2016:

- on an actual basis;
- on a pro forma basis to give effect to:
  - (i) the conversion of all 27,135,884 of our outstanding preferred shares into common shares on a one-for-one basis immediately prior to the closing of this offering;
  - (ii) the issuance of 328,017 common shares to Dr. Emmanuelle Charpentier immediately prior to the closing of this offering pursuant to the Call Option Agreement; and
  - (iii) the filing and effectiveness of our amended and restated articles of association and creation of authorized share capital of 31,724,612 common shares upon closing of this offering.
- on a pro forma as adjusted basis to further reflect:
  - (i) the receipt of the estimated net proceeds from the sale of 4,700,000 common shares in this offering at an assumed initial public offering price of $16.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us; and
  - (ii) the issuance and sale by us in the concurrent private placement of 2,187,500 common shares to Bayer BV, assuming an initial public offering price of $16.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus.

	As of December 31, 2015	As of June 30, 2016		
	Actual	Actual	Pro Forma	Pro Forma As Adjusted(1)
	(in thousands)	(in thousands)		
Balance Sheet Data:				
Cash	$ 155,961	$ 246,849	246,849	348,644
Working capital	146,685	168,560	168,560	271,867
Total assets	159,423	293,059	293,059	392,733
Redeemable convertible preferred shares	64,521	185,565	—	—
Total shareholders' (deficit) equity	(29,124)	(50,224)	135,341	236,527

(1) A $1.00 increase (decrease) in the assumed initial public offering price of $16.00 per share would increase (decrease) each of the pro forma as adjusted additional paid in capital and total shareholders' equity by approximately $4.4 million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1,000,000 in the number of shares offered by us would increase (decrease) pro forma additional paid in capital and total shareholders' equity and capitalization by $14.9 million, assuming an initial public offering price of $16.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

RISK FACTORS

Investing in our common shares involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus and any related free writing prospectus, including our consolidated financial statements and the related notes thereto and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding whether to invest in our common shares. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common shares could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations

Risks Related to Our Financial Position and Need for Additional Capital

We Have Incurred Significant Operating Losses Since Our Inception And Anticipate That We Will Incur Continued Losses For The Foreseeable Future.

We have funded our operations to date through proceeds from sales of preferred shares, convertible securities and payments received in connection with our joint venture with Bayer HealthCare LLC, or Bayer Healthcare, and collaboration agreement with Vertex Pharmaceuticals, Incorporated, or Vertex. Since inception, we have incurred significant operating losses. Our net loss was $6.8 million and $25.8 million for the years ended December 31, 2014 and 2015, respectively, and $25.6 for the six months ended June 30, 2016. As of June 30, 2016, we had an accumulated deficit of $59.5 million. We expect to continue to incur significant expenses and operating losses over the next several years and for the foreseeable future. Our prior losses, combined with expected future losses, have had and will continue to have an adverse effect on our shareholders' deficit and working capital. We anticipate that our expenses will increase substantially if and as we:

- continue our current research programs and our preclinical development of product candidates from our current research programs;
- seek to identify additional research programs and additional product candidates;
- initiate preclinical studies and clinical trials for any product candidates we identify and choose to develop;
- maintain, expand and protect our intellectual property portfolio;
- seek marketing approvals for any of our product candidates that successfully complete clinical trials;
- further develop our gene editing technology;
- hire additional clinical, quality control and scientific personnel;
- add operational, financial and management information systems and personnel, including personnel to support our product candidate development;
- acquire or in-license other technologies;
- ultimately establish a sales, marketing, and distribution infrastructure to commercialize any products for which we may obtain marketing approval; and
- operate as a public company.

As a result, we expect to continue to incur significant and increasing operating losses for the foreseeable future. Because of the numerous risks and uncertainties associated with developing gene editing product candidates, we are unable to predict the extent of any future losses or when we will become profitable, if at all. Even if we do become profitable, we may not be able to sustain or increase our profitability on a quarterly or annual basis.

We Have Never Generated Revenue From Product Sales And May Never Be Profitable.

To date, we have not generated any revenue from our programs and product candidates and do not expect to generate any revenue from the sale of our product candidates in the near future, if ever. We will not generate significant product revenue unless and until we, or our partners, obtain marketing approval of, and begin to sell one or more of our product candidates. Our ability to generate product revenue depends on a number of factors, including, but not limited to:

- identifying product candidates and completing research and preclinical and clinical development of any product candidates we may identify;
- seeking and obtaining regulatory and marketing approvals for any of our product candidates for which we complete clinical trials;
- launching and commercializing any of our product candidates for which we obtain regulatory approval by establishing a sales force, marketing and distribution infrastructure or, alternatively, collaborating with a commercialization partner;
- qualifying for adequate coverage and reimbursement by government and third-party payors for any of our product candidates for which we obtain regulatory and marketing approval;
- developing, maintaining and enhancing a sustainable, scalable, reproducible, and transferable manufacturing process for the product candidates we may develop;
- establishing and maintaining supply chain and manufacturing relationships with third parties that can provide adequate products and services, in both amount and quality, to support clinical development and the market demand for any of our product candidates for which we obtain regulatory and marketing approval;
- obtaining market acceptance of any product candidates we may develop as viable treatment options;
- addressing competing technological and market developments;
- negotiating favorable terms in any collaboration, licensing, or other arrangements into which we may enter and performing our obligations in such collaborations;
- maintaining, protecting and expanding our portfolio of intellectual property rights, including patents, trade secrets, and know-how;
- avoiding and defending against third-party interference or infringement claims;
- attracting, hiring, and retaining qualified personnel; and
- implementing internal systems and infrastructure, as needed.

Even if one or more of the product candidates we may develop is approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate. Our expenses could increase beyond expectations if we are required by the U.S. Food and Drug Administration, or the FDA, the European Medicines Agency, or the EMA, or other regulatory authorities to perform clinical and other studies in addition to those that we anticipate. Even if we are able to generate revenues from the sale of any approved products, we may not become profitable and may need to obtain additional funding to continue operations.

Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of our Company and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations. A decline in the value of our Company also could cause you to lose all or part of your investment.

Even If We Consummate This Offering And The Concurrent Private Placement With Bayer Global Investments B.V., or Bayer BV, We Will Need To Raise Substantial Additional Funding, Which Will Dilute Our Shareholders. If We Are Unable To Raise Capital When Needed, We Would Be Forced To Delay, Reduce Or Eliminate Some Of Our Product Development Programs Or Commercialization Efforts.

The development of gene editing product candidates is capital intensive. We expect our expenses to increase in connection with our ongoing activities, particularly as we continue the research and development of, initiate preclinical studies and clinical trials for and seek marketing approval for our product candidates. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution to the extent that such sales, marketing, manufacturing and distribution are not the responsibility of Bayer BV or Vertex, or other future collaborators. We may also need to raise additional funds sooner if we choose to pursue additional indications or geographies for our product candidates or otherwise expand more rapidly than we presently anticipate. Furthermore, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, reduce or eliminate certain of our research and development programs or future commercialization efforts.

As of June 30, 2016, we had cash of approximately $246.8 million. We expect that the net proceeds from this offering and the concurrent private placement, together with our existing cash and cash equivalents, and anticipated research support under our joint venture with Bayer BV and collaboration agreement with Vertex, will enable us to fund our operating expenses and capital expenditure requirements for at least the next 24 months.

Our future capital requirements will depend on, and could increase significantly as a result of, many factors, including:

- the scope, progress, results and costs of drug discovery, preclinical development, laboratory testing and clinical trials for our product candidates;
- the scope, prioritization and number of our research and development programs;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of establishing and maintaining a supply chain for the development and manufacture of our product candidates;
- the success of our current collaborations;
- our ability to establish and maintain additional collaborations on favorable terms, if at all;
- the achievement of milestones or occurrence of other developments that trigger payments under any additional collaboration agreements we obtain;
- the extent to which we are obligated to reimburse, or entitled to reimbursement of, clinical trial costs under future collaboration agreements, if any;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- the extent to which we acquire or in-license other product candidates and technologies;
- the costs of establishing or contracting for manufacturing capabilities if we obtain regulatory approvals to manufacture our product candidates;
- the costs of establishing or contracting for sales and marketing capabilities if we obtain regulatory approvals to market our product candidates; and
- our ability to establish and maintain healthcare coverage and adequate reimbursement.

Any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates. We cannot guarantee that future financing will be available in sufficient amounts or on terms acceptable to us, if at all. Moreover, the terms of any financing may adversely affect the holdings or the rights of our shareholders and the issuance of additional securities, whether equity or debt, by us, or the possibility of such issuance, may cause the market price of our shares to decline. The sale of additional equity or convertible securities would dilute all of our shareholders and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a shareholder. The incurrence of indebtedness would result in increased fixed payment obligations and we may be required to agree to certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. We could also be required to seek funds through arrangements with collaborators or otherwise at an earlier stage than otherwise would be desirable and we may be required to relinquish rights to some of our technologies or product candidates or otherwise agree to terms unfavorable to us, any of which may have a material adverse effect on our business, operating results and prospects.

If we are unable to obtain funding on a timely basis, we may be required to significantly curtail, delay or discontinue one or more of our research or development programs or the commercialization of any product candidate, or be unable to expand our operations or otherwise capitalize on our business opportunities, as desired, which could materially affect our business, financial condition and results of operations.

We Have A Very Limited Operating History, Which May Make It Difficult To Evaluate Our Technology And Product Development Capabilities And Predict Our Future Performance.

We are very early in our development efforts and all of our lead programs are still in the discovery stage. We were formed in October 2013, have no products approved for commercial sale and have not generated any revenue from product sales. Our ability to generate product revenue or profits, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of our product candidates, which may never occur. We may never be able to develop or commercialize a marketable product.

Each of our programs will require additional discovery research and then preclinical and clinical development, regulatory approval in multiple jurisdictions, obtaining manufacturing supply, capacity and expertise, building of a commercial organization, substantial investment and significant marketing efforts before we generate any revenue from product sales. In addition, our product candidates must be approved for marketing by the FDA or certain other foreign regulatory agencies, including the EMA, before we may commercialize any product.

Our limited operating history, particularly in light of the rapidly evolving gene editing field, may make it difficult to evaluate our technology and industry and predict our future performance. Our very short history as an operating company makes any assessment of our future success or viability subject to significant uncertainty. We will encounter risks and difficulties frequently experienced by very early stage companies in rapidly evolving fields. If we do not address these risks successfully, our business will suffer.

Our Ability To Use Tax Loss Carryforwards In Switzerland May Be Limited.

As of December 31, 2015, we reported tax loss carry forwards from inception through 2015 for purposes of Swiss federal direct taxes in the aggregate amount of CHF 22.0 million. Due to the expected mixed company status (in case the advance tax ruling with respect to the mixed company status will be accepted) the tax losses at cantonal level amount to CHF 4.1 million. These tax losses could be available to offset future taxable income. If not used, these tax losses will expire seven years after the year in which they were incurred. Due to our limited income, there is a high risk that the tax loss carry forwards will expire partly or entirely.

Risks Related to Our Business, Technology and Industry

We Are Very Early In Our Development Efforts. All Of Our Product Candidates Are Still In Preclinical Development And It Will Be Many Years Before We Or Our Collaborators Commercialize A Product Candidate, If Ever. If We Are Unable To Advance Our Product Candidates To Clinical Development, Obtain Regulatory Approval And Ultimately Commercialize Our Product Candidates, Or Experience Significant Delays In Doing So, Our Business Will Be Materially Harmed.

We are very early in our development efforts and have focused our research and development efforts to date on our Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) Associated protein-9 nuclease, or CRISPR/Cas9, gene editing technology, identifying our initial targeted disease indications and our initial product candidates. Our future success depends heavily on the successful development of our CRISPR/Cas9 gene editing product candidates. Currently, all of our product candidates are in preclinical development. We have also only recently begun development activities for a product candidate for the treatment of beta-thalassemia and sickle cell disease in connection with our collaboration with Vertex and have not yet identified a lead product candidate. We have invested substantially all of our efforts and financial resources in the identification and preclinical development of our current product candidates. Our ability to generate product revenue, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of our product candidates, which may never occur. For example, our research programs, including those subject to our joint venture with Bayer Healthcare and collaboration agreement with Vertex, may fail to identify potential product candidates for clinical development for a number of reasons. Our research methodology may be unsuccessful in identifying potential product candidates, or our potential product candidates may be shown to have harmful side effects or may have other characteristics that may make the products impractical to manufacture, unmarketable, or unlikely to receive marketing approval. We currently generate no revenue from sales of any product and we may never be able to develop or commercialize a marketable product.

We plan to file our clinical trial applications, or CTAs, to begin our first clinical trial for our hemoglobinopathy program targeting beta-thalassemia in late 2017 and for our hemoglobinopathy program targeting sickle cell disease in early 2018. In each case, the filing is subject to the identification and selection of guide RNA with acceptable efficiency. Commencing this clinical trial, and any other clinical trials we may initiate, is also subject to acceptance by the FDA of our Investigational New Drug application, or IND, and finalizing the trial design based on discussions with the FDA and other regulatory authorities, including the NIH. In the event that the FDA requires us to complete additional preclinical studies or we are required to satisfy other FDA requests, the start of our first clinical trial for our hemoglobinopathy programs or any of our other programs may be delayed. Even after we receive and incorporate guidance from these regulatory authorities, the FDA or other regulatory authorities could disagree that we have satisfied their requirements to commence our clinical trial or change their position on the acceptability of our trial design or the clinical endpoints selected, which may require us to complete additional preclinical studies or clinical trials or impose stricter approval conditions than we currently expect.

Our product candidates will require additional preclinical and clinical development, regulatory and marketing approval in multiple jurisdictions, obtaining manufacturing supply, capacity and expertise, building of a commercial organization, substantial investment and significant marketing efforts before we generate any revenue from product sales. In addition, our product development programs must be approved for marketing by the FDA, or certain other foreign regulatory agencies, including the EMA, before we may commercialize our product candidates.

The success of our product candidates will depend on several factors, including the following:

- successful information of product candidates in our development programs;
- successful completion of preclinical studies;
- sufficiency of our financial and other resources to complete the necessary preclinical studies and clinical trials;
- ability to develop safe and effective delivery mechanisms for our *in vivo* therapeutic programs;
- ability to identify optimal RNA sequences to guide genomic editing;
- entry into collaborations to further the development of our product candidates;

- a positive recommendation of the Recombinant DNA Advisory Committee of the U.S. National Institutes of Health, or NIH;
- approval of INDs for our product candidates to commence clinical trials;
- successful enrollment in, and completion of, preclinical studies and clinical trials;
- successful data from our clinical program that supports an acceptable risk-benefit profile of our product candidates in the intended populations;
- receipt of regulatory and marketing approvals from applicable regulatory authorities;
- establishment of arrangements with third-party manufacturers for clinical supply and commercial manufacturing and, where applicable, commercial manufacturing capabilities;
- successful development of our internal manufacturing processes and transfer to larger-scale facilities operated by either a contract manufacturing organization, or CMO, or by us;
- establishment and maintenance of patent and trade secret protection or regulatory exclusivity for our product candidates;
- commercial launch of our product candidates, if and when approved, whether alone or in collaboration with others;
- acceptance of the product candidates, if and when approved, by patients, the medical community and third-party payors;
- effective competition with other therapies and treatment options;
- establishment and maintenance of healthcare coverage and adequate reimbursement;
- enforcement and defense of intellectual property rights and claims;
- maintenance of a continued acceptable safety profile of the product candidates following approval; and
- achieving desirable medicinal properties for the intended indications.

Additionally, because our technology involves gene editing across multiple cell and tissue types, we are subject to many of the challenges and risks that gene therapies face, including:

- regulatory requirements governing gene and cell therapy products have changed frequently and may continue to change in the future; to date, no products that involve the genetic modification of patient cells have been approved in the United States and only one gene therapy product has been approved in the European Union;
- improper insertion of a gene sequence into a patient's chromosome could lead to lymphoma, leukemia or other cancers, or other aberrantly functioning cells; and
- the FDA recommends a follow-up observation period of 15 years or longer for all patients who receive treatment using gene therapies, and we may need to adopt such an observation period for our product candidates.

If we do not succeed in one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize our product candidates, which would materially harm our business. If we do not receive regulatory approvals for our product candidates, we may not be able to continue our operations.

Our CRISPR/Cas9 Gene Editing Product Candidates Are Based On A New Gene Editing Technology, Which Makes It Difficult To Predict The Time And Cost Of Development And Of Subsequently Obtaining Regulatory Approval, If At All. There Have Only Been A Limited Number Of Clinical Trials Of Product Candidates Based On Gene Editing Technology And No Gene Editing Products Have Been Approved In The United States Or In The European Union.

CRISPR/Cas9 gene editing technology is relatively new and no products based on CRISPR/Cas9 or other similar gene editing technologies have been approved in the United States or the European Union and only a limited number of clinical trials of products based on gene editing technologies have been commenced, and none have been completed. As such it is difficult to accurately predict the developmental challenges we may incur for our product candidates as they proceed through product discovery or identification, preclinical studies and clinical trials. In addition, because our programs are all in the research or preclinical stage, we have not yet been able to assess safety in humans, and there may be long-term effects from treatment with any of our future product candidates that we cannot predict at this time. Any product candidates we may develop will act at the level of DNA, and, because animal DNA differs from human DNA, testing of our product candidates in animal models may not be predictive of the results we observe in human clinical trials of our product candidates for either safety or efficacy. Also, animal models may not exist for some of the diseases we choose to pursue in our programs. As a result of these factors, it is more difficult for us to predict the time and cost of product candidate development, and we cannot predict whether the application of our gene editing technology, or any similar or competitive gene editing technologies, will result in the identification, development, and regulatory approval of any products. There can be no assurance that any development problems we experience in the future related to our gene editing technology or any of our research programs will not cause significant delays or unanticipated costs, or that such development problems can be solved. Any of these factors may prevent us from completing our preclinical studies or any clinical trials that we may initiate or commercializing any product candidates we may develop on a timely or profitable basis, if at all.

The clinical trial requirements of the FDA, the EMA and other regulatory authorities and the criteria these regulators use to determine the safety and efficacy of a product candidate vary substantially according to the type, complexity, novelty and intended use and market of the product candidate. No products based on gene editing technologies have been approved by regulators. As a result, the regulatory approval process for product candidates such as ours is uncertain and may be more expensive and take longer than the approval process for product candidates based on other, better known or more extensively studied technologies. It is difficult to determine how long it will take or how much it will cost to obtain regulatory approvals for our product candidates in either the United States or the European Union or how long it will take to commercialize our product candidates. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product candidate to market could decrease our ability to generate sufficient product revenue, and our business, financial condition, results of operations and prospects may be harmed.

The FDA, The NIH And The EMA Have Demonstrated Caution In Their Regulation Of Gene Therapy Treatments, And Ethical And Legal Concerns About Gene Therapy And Genetic Testing May Result In Additional Regulations Or Restrictions On The Development And Commercialization Of Our Product Candidates, Which May Be Difficult To Predict.

The FDA, NIH and the EMA have each expressed interest in further regulating biotechnology, including gene therapy and genetic testing. For example, the EMA advocates a risk-based approach to the development of a gene therapy product. Agencies at both the federal and state level in the United States, as well as U.S. congressional committees and foreign governments, have also expressed interest in further regulating the biotechnology industry. Such action may delay or prevent commercialization of some or all of our product candidates. Within the broader genome product field, only one gene therapy product, uniQure N.V.'s Glybera, has received marketing authorization from the European Commission, and no gene therapy products have received marketing approval in the United States.

Regulatory requirements in the United States and abroad governing gene therapy products have changed frequently and may continue to change in the future. The FDA established the Office of Cellular, Tissue and

Gene Therapies within its Center for Biologics Evaluation and Research to consolidate the review of gene therapy and related products, and established the Cellular, Tissue and Gene Therapies Advisory Committee to advise this review. Prior to submitting an IND, our human clinical trials are subject to review by the NIH Office of Biotechnology Activities, or OBA, Recombinant DNA Advisory Committee, or the RAC. Following an initial review, RAC members make a recommendation as to whether the protocol raises important scientific, safety, medical, ethical or social issues that warrant in-depth discussion at the RAC's quarterly meetings. Even though the FDA decides whether individual gene therapy protocols may proceed under an IND, the RAC's recommendations are shared with the FDA and the RAC public review process, if undertaken, can delay the initiation of a clinical trial, even if the FDA has reviewed the trial design and details and has not objected to its initiation or has notified the sponsor that the study may begin. Conversely, the FDA can put an IND on a clinical hold even if the RAC has provided a favorable review or has recommended against an in-depth, public review. Moreover, under guidelines published by the NIH, patient enrollment in our future gene editing clinical trials cannot begin until the investigator for such clinical trial has received a letter from the OBA indicating that the RAC review process has been completed; and Institutional Biosafety Committee, or IBC, approval as well as all other applicable regulatory authorizations have been obtained. In addition to the government regulators, the IBC and institutional review board, or IRB, of each institution at which we conduct clinical trials of our product candidates, or a central IRB if appropriate, would need to review the proposed clinical trial to assess the safety of the trial. In addition, adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other oversight bodies to change the requirements for approval of any of our product candidates. Similarly, the EMA governs the development of gene therapies in the European Union and may issue new guidelines concerning the development and marketing authorization for gene therapy products and require that we comply with these new guidelines.

These regulatory review agencies and committees and the new requirements or guidelines they promulgate may lengthen the regulatory review process, require us to perform additional studies or trials, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of our product candidates or lead to significant post-approval limitations or restrictions. As we advance our product candidates, we will be required to consult with these regulatory agencies and committees and comply with applicable requirements and guidelines. If we fail to do so, we may be required to delay or discontinue development of such product candidates. These additional processes may result in a review and approval process that is longer than we otherwise would have expected. Delays as a result of an increased or lengthier regulatory approval process or further restrictions on the development of our product candidates can be costly and could negatively impact our or our collaborators' ability to complete clinical trials and commercialize our current and future product candidates in a timely manner, if at all.

If Any Of The Product Candidates We May Develop Or The Delivery Modes We Rely On Cause Undesirable Side Effects, It Could Delay Or Prevent Their Regulatory Approval, Limit The Commercial Potential Or Result In Significant Negative Consequences Following Any Potential Marketing Approval.

Product candidates we may develop may be associated with undesirable side effects, unexpected characteristics or other serious adverse events, including off-target cuts of DNA, or the introduction of cuts in DNA at locations other than the target sequence. These off-target cuts could lead to disruption of a gene or a genetic regulatory sequence at an unintended site in the DNA, or, in those instances where we also provide a segment of DNA to serve as a repair template, it is possible that following off-target cut events, DNA from such repair template could be integrated into the genome at an unintended site, potentially disrupting another important gene or genomic element. There also is the potential risk of delayed adverse events following exposure to gene editing therapy due to persistent biologic activity of the genetic material or other components of products used to carry the genetic material. Possible adverse side effects that could occur with treatment with gene editing products include an immunologic reaction after administration which could substantially limit the effectiveness of the treatment. If our CRISPR/Cas9 gene editing technology demonstrates a similar effect, we may decide or be required to halt or delay preclinical development or clinical development of our product candidates. In addition to serious adverse events or side effects caused by any product candidate we may develop, the administration process or related procedures also can cause undesirable side effects. If any such events occur, our clinical trials could be suspended or terminated.

If in the future we are unable to demonstrate that such adverse events were caused by factors other than our product candidate, the FDA, EMA or other comparable foreign regulatory authorities could order us to cease further clinical studies of, or deny approval of, any product candidates we are able to develop for any or all targeted indications. Even if we are able to demonstrate that all future serious adverse events are not product-related, such occurrences could affect patient recruitment or the ability of enrolled patients to complete the trial. Moreover, if we elect, or are required, to delay, suspend or terminate any clinical trial of any product candidate we may develop, the commercial prospects of such product candidates may be harmed and our ability to generate product revenues from any of these product candidates may be delayed or eliminated. Any of these occurrences may harm our ability to identify and develop product candidates, and may harm our business, financial condition, result of operations and prospects significantly.

Additionally, if we successfully develop a product candidate and it receives marketing approval, the FDA could require us to adopt a Risk Evaluation and Mitigation Strategy, or REMS, to ensure that the benefits of treatment with such product candidate outweighs the risks for each potential patient, which may include, among other things, a medication guide outlining the risks of the product for distribution to patients, a communication plan to health care practitioners, extensive patient monitoring, or distribution systems and processes that are highly controlled, restrictive, and more costly than what is typical for the industry. Furthermore, if we or others later identify undesirable side effects caused by any product candidate that we to develop, several potentially significant negative consequences could result, including:

- regulatory authorities may revoke licenses or suspend, vary or withdraw approvals of such product candidate;
- regulatory authorities may require additional warnings on the label;
- we may be required to change the way a product candidate is administered or conduct additional clinical trials;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of our CRISPR/Cas9 technology and any product candidates we may identify and develop and could have a material adverse effect on our business, financial condition, results of operations and prospects.

If We Experience Delays Or Difficulties In The Enrollment Of Patients In Clinical Trials, Our Receipt Of Necessary Regulatory Approvals Could Be Delayed Or Prevented.

We or our collaborators may not be able to initiate or continue clinical trials for any product candidates we identify or develop if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or analogous regulatory authorities outside the United States, or as needed to provide appropriate statistical power for a given trial. Enrollment may be particularly challenging for any rare genetically defined diseases we may target in the future. In addition, if patients are unwilling to participate in our gene editing trials because of negative publicity from adverse events related to the biotechnology, gene therapy or gene editing fields, competitive clinical trials for similar patient populations, clinical trials in competing products, or for other reasons, the timeline for recruiting patients, conducting studies and obtaining regulatory approval of any product candidates we may develop may be delayed. Moreover, some of our competitors may have ongoing clinical trials for product candidates that would treat the same indications as any product candidates we may develop, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates.

Patient enrollment is also affected by other factors, including:

- severity of the disease under investigation;

- size of the patient population and process for identifying subjects;
- design of the trial protocol;
- availability and efficacy of approved medications for the disease under investigation;
- availability of genetic testing for potential patients;
- ability to obtain and maintain subject consent;
- risk that enrolled subjects will drop out before completion of the trial;
- eligibility and exclusion criteria for the trial in question;
- perceived risks and benefits of the product candidate under trial;
- perceived risks and benefits of gene editing and cellular therapies as therapeutic approaches;
- efforts to facilitate timely enrollment in clinical trials;
- patient referral practices of physicians;
- ability to monitor patients adequately during and after treatment; and
- proximity and availability of clinical trial sites for prospective patients.

Enrollment delays in our clinical trials may result in increased development costs for any product candidates we may develop, which would cause the value of our Company to decline and limit our ability to obtain additional financing. If we or our collaborators have difficulty enrolling a sufficient number of patients to conduct our clinical trials as planned, we may need to delay, limit, or terminate ongoing or planned clinical trials, any of which would have an adverse effect on our business, financial condition, results of operations, and prospects.

Positive Results From Early Preclinical Studies Of Our Product Candidates Are Not Necessarily Predictive Of The Results Of Later Preclinical Studies And Any Future Clinical Trials Of Our Product Candidates. If We Cannot Replicate The Positive Results From Our Earlier Preclinical Studies Of Our Product Candidates In Our Later Preclinical Studies And Future Clinical Trials, We May Be Unable To Successfully Develop, Obtain Regulatory Approval For And Commercialize Our Product Candidates.

Any positive results from our preclinical studies of our product candidates may not necessarily be predictive of the results from required later preclinical studies and clinical trials. Similarly, even if we are able to complete our planned preclinical studies or any future clinical trials of our product candidates according to our current development timeline, the positive results from such preclinical studies and clinical trials of our product candidates may not be replicated in subsequent preclinical studies or clinical trial results.

Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in early-stage development and we cannot be certain that we will not face similar setbacks. These setbacks have been caused by, among other things, preclinical findings made while clinical trials were underway or safety or efficacy observations made in preclinical studies and clinical trials, including previously unreported adverse events. Moreover, non-clinical and clinical data are often susceptible to varying interpretations and analyses and many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials nonetheless failed to obtain FDA or EMA approval.

Even If We Complete The Necessary Preclinical Studies And Clinical Trials, The Marketing Approval Process Is Expensive, Time-Consuming, And Uncertain And May Prevent Us From Obtaining Approvals For The Commercialization Of Any Product Candidates We May Develop. If We Are Not Able To Obtain,

Or If There Are Delays In Obtaining, Required Regulatory Approvals, We Will Not Be Able To Commercialize, Or Will Be Delayed In Commercializing, Product Candidates We May Develop, And Our Ability To Generate Revenue Will Be Materially Impaired.

Any product candidates we may develop and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale, and distribution, are subject to comprehensive regulation by the FDA and other regulatory authorities in the United States and by comparable authorities in other countries. Failure to obtain marketing approval for a product candidate will prevent us from commercializing the product candidate in a given jurisdiction. We have not received approval or clearance to market any product candidates from regulatory authorities in any jurisdiction and it is possible that none of our product candidates or any product candidates we may seek to develop in the future will ever obtain regulatory approval or clearance. We have only limited experience in filing and supporting the applications necessary to gain marketing approvals and expect to rely on third-party contract research organizations, or CROs, or regulatory consultants to assist us in this process. Securing regulatory approval requires the submission of extensive preclinical and clinical data and supporting information to the various regulatory authorities for each therapeutic indication to establish the biologic product candidate's safety, purity, efficacy and potency. Securing regulatory approval also requires the submission of information about the product manufacturing process to, and inspection of manufacturing facilities by, the relevant regulatory authority. Any product candidates we develop may not be effective, may be only moderately effective, or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude our obtaining marketing approval or prevent or limit commercial use.

The process of obtaining marketing approvals, both in the United States and abroad, is expensive, may take many years if additional clinical trials are required, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity, and novelty of the product candidates involved. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. The FDA and comparable authorities in other countries have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit, or prevent marketing approval of a product candidate. Any marketing approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

If we experience delays in obtaining approval or if we fail to obtain approval of any product candidates we may develop, the commercial prospects for those product candidates may be harmed, and our ability to generate revenues will be materially impaired.

We May Never Obtain FDA Approval For Any Of Our Product Candidates In The United States, And Even If We Do, We May Never Obtain Approval For Or Commercialize Any Of Our Product Candidates In Any Other Jurisdiction, Which Would Limit Our Ability To Realize Their Full Market Potential.

In order to eventually market any of our product candidates in any particular foreign jurisdiction, we must establish and comply with numerous and varying regulatory requirements on a jurisdiction-by-jurisdiction basis regarding safety and efficacy. Approval by the FDA in the United States, if obtained, does not ensure approval by regulatory authorities in other countries or jurisdictions. In addition, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not guarantee regulatory approval in any other country. Approval processes vary among countries and can involve additional product testing and validation and additional administrative review periods. Seeking foreign regulatory approval could result in difficulties and costs for us and require additional preclinical studies or clinical trials which could be costly and time-consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of our products in those countries. The foreign regulatory approval process involves all of the risks associated with FDA approval. We do not have any product candidates approved

for sale in any jurisdiction, including international markets, and we do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approvals in international markets are delayed, our target market will be reduced and our ability to realize the full market potential of our products will be unrealized.

Gene editing Products Are Novel And May Be Complex And Difficult To Manufacture. We Could Experience Manufacturing Problems That Result In Delays In The Development Or Commercialization Of Our Product Candidates Or Otherwise Harm Our Business.

The manufacturing process used to produce CRISPR/Cas9-based product candidates may be complex, as they are novel and have not been validated for clinical and commercial production. Several factors could cause production interruptions, including equipment malfunctions, facility contamination, raw material shortages or contamination, natural disasters, disruption in utility services, human error or disruptions in the operations of our suppliers.

Our product candidates will require processing steps that are more complex than those required for most small molecule drugs. Moreover, unlike small molecules, the physical and chemical properties of biologics generally cannot be fully characterized. As a result, assays of the finished product may not be sufficient to ensure that the product will perform in the intended manner. Accordingly, we will employ multiple steps to control the manufacturing process to assure that the process works and the product candidate is made strictly and consistently in compliance with the process. Problems with the manufacturing process, even minor deviations from the normal process, could result in product defects or manufacturing failures that result in lot failures, product recalls, product liability claims or insufficient inventory. We may encounter problems achieving adequate quantities and quality of clinical grade materials that meet FDA, the EMA or other applicable standards or specifications with consistent and acceptable production yields and costs.

In addition, the FDA, the EMA and other foreign regulatory authorities may require us to submit samples of any lot of any approved product together with the protocols showing the results of applicable tests at any time. Under some circumstances, the FDA, the EMA or other foreign regulatory authorities may require that we not distribute a lot until the relevant agency authorizes its release. Slight deviations in the manufacturing process, including those affecting quality attributes and stability, may result in unacceptable changes in the product that could result in lot failures or product recalls. Lot failures or product recalls could cause us to delay product launches or clinical trials, which could be costly to us and otherwise harm our business, financial condition, results of operations and prospects. Problems in our manufacturing process could restrict our ability to meet market demand for our products.

We also may encounter problems hiring and retaining the experienced scientific, quality-control and manufacturing personnel needed to operate our manufacturing processes, which could result in delays in production or difficulties in maintaining compliance with applicable regulatory requirements. Any problems in our manufacturing process or facilities could make us a less attractive collaborator for potential partners, including larger pharmaceutical companies and academic research institutions, which could limit our access to additional attractive development programs.

Adverse Public Perception Of Gene Editing And Cellular Therapy Products May Negatively Impact Demand For, Or Regulatory Approval Of, Our Product Candidates.

Our product candidates involve editing the human genome. The clinical and commercial success of our product candidates will depend in part on public acceptance of the use of gene editing therapies for the prevention or treatment of human diseases. Public attitudes may be influenced by claims that gene editing is unsafe, unethical, or immoral, and, consequently, our products may not gain the acceptance of the public or the medical community. Negative public reaction to gene therapy in general could result in greater government regulation and stricter labeling requirements of gene editing products, including any of our product candidates,

and could cause a decrease in the demand for any products we may develop. Adverse public attitudes may adversely impact our ability to enroll clinical trials. Moreover, our success will depend upon physicians prescribing, and their patients being willing to receive, treatments that involve the use of product candidates we may develop in lieu of, or in addition to, existing treatments with which they are already familiar and for which greater clinical data may be available.

If, In The Future, We Are Unable To Establish Sales And Marketing Capabilities Or Enter Into Agreements With Third Parties To Sell And Market Products Based On Our Technologies, We May Not Be Successful In Commercializing Our Products If And When Any Products Candidates Are Approved And We May Not Be Able To Generate Any Revenue.

We do not currently have a sales or marketing infrastructure and, as a company, have no experience in the sale, marketing or distribution of therapeutic products. To achieve commercial success for any approved product candidate for which we retain sales and marketing responsibilities, we must build our sales, marketing, managerial and other non-technical capabilities or make arrangements with third parties to perform these services. In the future, we may choose to build a focused sales and marketing infrastructure to sell, or participate in sales activities with our collaborators for, some of our product candidates if and when they are approved.

There are risks involved with both establishing our own sales and marketing capabilities and entering into arrangements with third parties to perform these services. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to commercialize our product candidates on our own include:

- our inability to recruit, train and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future product that we may develop;
- the lack of complementary treatments to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

If we enter into arrangements with third parties to perform sales, marketing and distribution services, our product revenue or the profitability to us from these revenue streams is likely to be lower than if we were to market and sell any product candidates that we develop ourselves. In addition, we may not be successful in entering into arrangements with third parties to sell and market our product candidates or may be unable to do so on terms that are favorable to us. We likely will have little control over such third parties and any of them may fail to devote the necessary resources and attention to sell and market our product candidates effectively. If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we may not be successful in commercializing our product candidates. Further, our business, results of operations, financial condition and prospects will be materially adversely affected.

In particular, gene editing technology is subject to public debate and heightened regulatory scrutiny due to ethical concerns relating to the application of gene editing technology to human embryos or the human germline. For example, in April 2015, Chinese scientists reported on their attempts to edit the genome of human embryos to modify the gene for hemoglobin beta. This is the gene in which a mutation occurs in patients with the inherited blood disorder beta-thalassemia. Although this research was purposefully conducted in embryos that were not viable, the work prompted calls for a moratorium or other types of restrictions on gene editing of human eggs, sperm, and embryos. The Alliance for Regenerative Medicine in Washington has called for a voluntary moratorium on the use of gene editing technologies, including CRISPR/Cas9, in research that involved altering

human embryos or human germline cells. Similarly, the NIH has announced that it would not fund any use of gene editing technologies in human embryos, noting that there are multiple existing legislative and regulatory prohibitions against such work, including the Dickey-Wicker Amendment, which prohibits the use of appropriated funds for the creation of human embryos for research purposes or for research in which human embryos are destroyed. Laws in the United Kingdom prohibit genetically modified embryos from being implanted into women, but embryos can be altered in research labs under license from the Human Fertilisation and Embryology Authority. Research on embryos is more tightly controlled in many other European countries.

Although we do not use our technologies to edit human embryos or the human germline, such public debate about the use of gene editing technologies in human embryos and heightened regulatory scrutiny could prevent or delay our development of product candidates. More restrictive government regulations or negative public opinion would have a negative effect on our business or financial condition and may delay or impair our development and commercialization of product candidates or demand for any products we may develop. Adverse events in our preclinical studies or clinical trials or those of our competitors or of academic researchers utilizing gene editing technologies, even if not ultimately attributable to product candidates we may identify and develop, and the resulting publicity could result in increased governmental regulation, unfavorable public perception, potential regulatory delays in the testing or approval of potential product candidates we may identify and develop, stricter labeling requirements for those product candidates that are approved, and a decrease in demand for any such product candidates.

Even If We, Or Any Collaborators We May Have, Obtain Marketing Approvals For Any Product Candidates We Develop, The Terms Of Approvals And Ongoing Regulation Of Our Products Could Require The Substantial Expenditure Of Resources And May Limit How We, Or They, Manufacture And Market Our Products, Which Could Materially Impair Our Ability To Generate Revenue.

Any product candidate for which we obtain marketing approval, along with the manufacturing processes, post-approval clinical data, labeling, advertising, and promotional activities for such product, will be subject to continual requirements of and review by the FDA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, current Good Manufacturing Practice, or cGMP, requirements relating to quality control, quality assurance and corresponding maintenance of records and documents and requirements regarding recordkeeping. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the product. The FDA also may place other conditions on approvals including the requirement for a REMS to assure the safe use of the product. If the FDA concludes a REMS is needed, the sponsor of the Biologics License Application, or BLA, must submit a proposed REMS before it can obtain approval. A REMS could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools.

Accordingly, assuming we, or any collaborators we may have, receive marketing approval for one or more product candidates we develop, we, and such collaborators, and our and their contract manufacturers will continue to expend time, money, and effort in all areas of regulatory compliance, including manufacturing, production, product surveillance, and quality control. If we and such collaborators are not able to comply with post-approval regulatory requirements, we and such collaborators could have the marketing approvals for our products withdrawn by regulatory authorities and our, or such collaborators', ability to market any future products could be limited, which could adversely affect our ability to achieve or sustain profitability. Further, the cost of compliance with post-approval regulations may have a negative effect on our business, operating results, financial condition, and prospects.

Any Product Candidate For Which We Obtain Marketing Approval Could Be Subject To Restrictions Or Withdrawal From The Market, And We May Be Subject To Substantial Penalties If We Fail To Comply With Regulatory Requirements Or If We Experience Unanticipated Problems With Our Products, When And If Any Of Them Are Approved.

The FDA and other regulatory agencies closely regulate the post-approval marketing and promotion of biologics to ensure that they are marketed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA and other regulatory agencies impose stringent restrictions on manufacturers' communications regarding off-label use, and if we do not market our products for their approved indications, we may be subject to enforcement action for off-label marketing by the FDA and other federal and state enforcement agencies, including the Department of Justice. Violation of the Federal Food, Drug, and Cosmetic Act and other statutes, including the False Claims Act, relating to the promotion and advertising of prescription products may also lead to investigations or allegations of violations of federal and state health care fraud and abuse laws and state consumer protection laws.

In addition, later discovery of previously unknown problems with a product candidate, including adverse events of unanticipated severity or frequency, or with our manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on such products, manufacturers, or manufacturing processes;
- restrictions on the labeling or marketing of a product;
- restrictions on the distribution or use of a product;
- requirements to conduct post-marketing clinical trials;
- receipt of warning or untitled letters;
- restrictions on the marketing or manufacturing of the product, withdrawal of the product from the market, or voluntary or mandatory biologic recalls;
- refusal to approve pending applications or supplements to approved applications that we submit;
- fines, restitution, or disgorgement of profits or revenue;
- suspension or withdrawal of marketing approvals or revocation of biologics licenses;
- suspension of any ongoing clinical trials;
- refusal to permit the import or export of our products;
- product seizure or detention; and
- injunctions or the imposition of civil or criminal penalties.

The FDA's policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained, which would adversely affect our business, prospects and ability to achieve or sustain profitability.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may also inhibit our ability to commercialize any product candidates we may develop and adversely affect our business, financial condition, results of operations, and prospects.

The Commercial Success Of Any Of Our Product Candidates Will Depend Upon Its Degree Of Market Acceptance By Physicians, Patients, Third-party Payors And Others In The Medical Community.

Ethical, social and legal concerns about gene therapy could result in additional regulations restricting or prohibiting our products. Even with the requisite approvals from FDA in the United States, the EMA in the European Union and other regulatory authorities internationally, the commercial success of our product candidates will depend, in part, on the acceptance of physicians, patients and health care payors of gene therapy products in general, and our product candidates in particular, as medically necessary, cost-effective and safe. Any product that we commercialize may not gain acceptance by physicians, patients, health care payors and others in the medical community. The degree of market acceptance of gene therapy products and, in particular, our product candidates, if approved for commercial sale, will depend on several factors, including:

- the efficacy, durability and safety of such product candidates as demonstrated in any future clinical trials;
- the potential and perceived advantages of product candidates over alternative treatments;
- the cost of treatment relative to alternative treatments;
- the clinical indications for which the product candidate is approved by FDA or the EMA;
- patient awareness of, and willingness to seek, genotyping;
- the willingness of physicians to prescribe new therapies;
- the willingness of the target patient population to try new therapies;
- the prevalence and severity of any side effects;
- product labeling or product insert requirements of FDA, the EMA or other regulatory authorities, including any limitations or warnings contained in a product's approved labeling;
- relative convenience and ease of administration;
- the strength of marketing and distribution support;
- the timing of market introduction of competitive products;
- publicity concerning our products or competing products and treatments; and
- sufficient third-party payor coverage and reimbursement.

Even if a potential product displays a favorable efficacy and safety profile in preclinical studies and future clinical trials, market acceptance of the product will not be fully known until after it is launched. If our product candidates do not achieve an adequate level of acceptance following regulatory approval, if ever, we may not generate significant product revenue and may not become profitable.

We May Expend Our Limited Resources To Pursue A Particular Product Candidate Or Indication And Fail To Capitalize On Product Candidates Or Indications That May Be More Profitable Or For Which There Is A Greater Likelihood Of Success.

We have limited financial and managerial resources. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to timely capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

We Face Significant Competition In An Environment Of Rapid Technological Change And The Possibility That Our Competitors May Achieve Regulatory Approval Before Us Or Develop Therapies That Are More Advanced Or Effective Than Ours, Which May Harm Our Business And Financial Condition, And Our Ability To Successfully Market Or Commercialize Our Product Candidates.

The biotechnology and pharmaceutical industries, including the gene therapy field, are characterized by rapidly changing technologies, significant competition and a strong emphasis on intellectual property. We face substantial competition from many different sources, including large and specialty pharmaceutical and biotechnology companies, academic research institutions, government agencies and public and private research institutions, some or all of which may have greater access to capital or resources than we do.

We are aware of several companies focused on developing gene editing in various indications using CRISPR/Cas9 gene editing technology, including Intellia Therapeutics, Inc. and Editas Medicine, Inc., or Editas. There can be no certainty that other gene editing technologies will not be considered better or more attractive than our technology for the development of products. For example, researchers, including Feng Zhang, Ph.D., one of the founders of Editas recently announced the discovery of a CRISPR system involving a different protein, Cpf1, which can also edit human DNA. These researchers have asserted that Cpf1 may work better than Cas9 in some cases. Cas9 may be determined to be less attractive than Cpf1 or other CRISPR proteins that have yet to be discovered.

There are additional companies developing therapies using additional gene editing technologies, including transcription activator-like effector nucleases (TALENs), meganucleases and zinc finger nucleases (ZFNs). These companies include bluebird bio, Cellectis, Poseida Therapeutics, Precision Biosciences, and Sangamo Biosciences. Additional companies developing gene therapy products include Abeona Therapeutics, Avalanche Biotechnologies, Dimension Therapeutics, REGENXBIO, Spark Therapeutics and uniQure. In addition to competition from other gene editing therapies or gene therapies, any product we may develop may also face competition from other types of therapies, such as small molecule, antibody or protein therapies. In addition, new scientific discoveries may cause CRISPR/Cas9 technology, or gene editing as a whole, to be considered an inferior form of therapy.

Many of our current or potential competitors, either alone or with their collaboration partners, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical studies, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical, biotechnology, and gene therapy industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any products that we may develop or that would render any products that we may develop obsolete or non-competitive. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. Additionally, technologies developed by our competitors may render our potential product candidates uneconomical or obsolete, and we may not be successful in marketing any product candidates we may develop against competitors.

In addition, as a result of the expiration or successful challenge of our patent rights, we could face more litigation with respect to the validity and/or scope of patents relating to our competitors' products and our patents may not be sufficient to prevent our competitors from commercializing competing products. The availability of our competitors' products could limit the demand, and the price we are able to charge, for any products that we may develop and commercialize.

To become and remain profitable, we must develop and eventually commercialize product candidates with significant market potential, which will require us to be successful in a range of challenging activities. These activities can include completing preclinical studies and clinical trials of our product candidates, obtaining marketing approval for these product candidates, manufacturing, marketing and selling those products that are approved and satisfying any post marketing requirements. We may never succeed in any or all of these activities and, even if we do, we may never generate revenues that are significant or large enough to achieve profitability. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of our Company and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations. A decline in the value of our Company also could cause you to lose all or part of your investment.

Even If We Are Able To Commercialize Any Product Candidates, Such Products May Become Subject To Unfavorable Pricing Regulations, Third-party Reimbursement Practices, Or Healthcare Reform Initiatives, Which Would Harm Our Business.

The regulations that govern marketing approvals, pricing, and reimbursement for new biologic products vary widely from country to country. In the United States, recently enacted legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a product before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if any product candidates we may develop obtain marketing approval.

Our ability to commercialize any products successfully also will depend in part on the extent to which reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers, and other organizations. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. We cannot be sure that reimbursement will be available for any product that we commercialize and, if reimbursement is available, the level of reimbursement. Reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If reimbursement is not available or is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval.

There may be significant delays in obtaining reimbursement for newly approved products, and coverage may be more limited than the purposes for which the product is approved by the FDA or similar regulatory authorities outside the United States. Moreover, eligibility for reimbursement does not imply that any product will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale, and distribution. Interim reimbursement levels for new products, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the product and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost products and may be incorporated into existing payments for other services. Net prices for products may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of products from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment

limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and profitable payment rates from both government-funded and private payors for any approved products we may develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products, and our overall financial condition.

Risks Related to Our Relationships with Third Parties

If Conflicts Arise Between Us And Our Collaborators Or Strategic Partners, These Parties May Act In A Manner Adverse To Us And Could Limit Our Ability To Implement Our Strategies.

If conflicts arise between our corporate or academic collaborators or strategic partners and us, the other party may act in a manner adverse to us and could limit our ability to implement our strategies. Some of our academic collaborators and strategic partners are conducting multiple product development efforts within each area that is the subject of the collaboration with us. Our collaborators or strategic partners, however, may develop, either alone or with others, products in related fields that are competitive with the products or potential products that are the subject of these collaborations. Competing products, either developed by the collaborators or strategic partners or to which the collaborators or strategic partners have rights, may result in the withdrawal of partner support for our product candidates.

Some of our collaborators or strategic partners could also become our competitors in the future. Our collaborators or strategic partners could develop competing products, preclude us from entering into collaborations with their competitors, fail to obtain timely regulatory approvals, terminate their agreements with us prematurely, or fail to devote sufficient resources to the development and commercialization of products. Any of these developments could harm our product development efforts.

Our Collaborators And Strategic Partners May Control Aspects Of Our Clinical Trials, Which Could Result In Delays And Other Obstacles In The Commercialization Of Our Proposed Products And Materially Harm Our Results Of Operations.

For some programs, we will depend on third party collaborators and strategic partners to design and conduct our clinical trials. As a result, we may not be able to conduct these programs in the manner or on the time schedule we currently contemplate, which may negatively impact our business operations. In addition, if any of these collaborators or strategic partners withdraw support for our programs or proposed products or otherwise impair their development, our business could be negatively affected.

In October 2015, we entered into a four-year collaboration agreement with Vertex to research, develop and commercialize new treatments aimed at the underlying genetic causes of human diseases, including beta-thalassemia and sickle cell. In addition, in December 2015, we entered into an agreement with Bayer Healthcare LLC, or Bayer, to create a joint venture to discover and commercialize therapeutics for the treatment of blood disorders, blindness and heart disease in addition to select indications related to other sensory organs, metabolic diseases and autoimmune diseases based on our CRISPR/Cas9 gene editing technology.

We and Bayer each hold a 50% interest in the joint venture and each have two designees on the management board. As such, we cannot control all aspects of the clinical development and commercialization of any product candidate developed by the joint venture. Similarly, under our collaboration agreement with Vertex, Vertex has sole authority to select genetic targets to pursue and we will not have control over the development of any product candidates. Our lack of control over the clinical development in our agreements with Bayer and Vertex could cause delays or other difficulties in the development and commercialization of product candidates, which may prevent completion of intended IND filings in a timely fashion, if at all.

In addition, the termination of our agreement with Vertex would prevent us from receiving any milestone, royalty payments and other benefits under that agreement. The termination of our joint venture with Bayer would prevent us from participating in the profits of the joint venture. Either development would have a materially adverse effect on our results of operations.

Our Collaborators Or Strategic Partners May Decide To Adopt Alternative Technologies Or May Be Unable To Develop Commercially Viable Products With Our Technology, Which Would Negatively Impact Our Revenues And Our Strategy To Develop These Products.

Our collaborators or strategic partners may adopt alternative technologies, which could decrease the marketability of our CRISPR/Cas9 gene editing technology. Additionally, because our current or future collaborators or strategic partners are likely to be working on more than one development project, they could choose to shift their resources to projects other than those they are working on with us. If they do so, this would delay our ability to test our technology and would delay or terminate the development of potential products based on our CRISPR/Cas9 gene editing technology. Further, our collaborators and strategic partners may elect not to develop products arising out of our collaborative and strategic partnering arrangements or to devote sufficient resources to the development, manufacturing, marketing or sale of these products. The failure to develop and commercialize a product candidate pursuant to our agreements with our current or future collaborators would prevent us from receiving future milestone and royalty payments which would negatively impact our revenues.

We May Seek To Establish Additional Collaborations And, If We Are Not Able To Establish Them On Commercially Reasonable Terms, We May Have To Alter Our Development And Commercialization Plans.

Our product candidate development programs and the potential commercialization of our product candidates will require substantial additional cash to fund expenses. For some of our product candidates, we may decide to collaborate with additional pharmaceutical and biotechnology companies for the development and potential commercialization of those product candidates.

We face significant competition in seeking appropriate collaborators. Whether we reach a definitive agreement for any additional collaborations will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by FDA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing drugs, the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our product candidate. The terms of any additional collaborations or other arrangements that we may establish may not be favorable to us.

We may also be restricted under existing collaboration agreements from entering into future agreements on certain terms with potential collaborators. For example, we have granted exclusive rights to Vertex for certain genetic targets, and during the term of the collaboration agreement, we will be restricted from granting rights to other parties to use our CRISPR/Cas9 technology to pursue therapies that address these genetic targets. Similarly, pursuant to our joint venture agreement with Bayer, during the term of the joint venture, and for a specified period after the termination of the joint venture, we will be prohibited from developing products that use our CRISPR/Cas9 technology in specified fields that would compete with the joint venture and Bayer, respectively. The non-competition provisions in each of these agreements could limit our ability to enter into strategic collaborations with future collaborators.

We may not be able to negotiate additional collaborations on a timely basis, on acceptable terms, or at all. Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators. If we are unable to negotiate and enter into new collaborations, we may have to curtail the development of the product candidate for which we are seeking to collaborate, reduce or delay its development program or one or more of our other development programs, delay

its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring them to market and generate product revenue.

We May Rely On Third Parties To Conduct Our Preclinical Studies And Any Future Clinical Trials For Our Product Candidates. If These Third Parties Do Not Successfully Carry Out Their Contractual Duties, Comply With Regulatory Requirements Or Meet Expected Deadlines, We May Not Be Able To Obtain Regulatory Approval For Or Commercialize Our Product Candidates And Our Business Could Be Substantially Harmed.

We may rely on medical institutions, clinical investigators, contract laboratories and other third parties, such as CROs, to conduct preclinical studies and future clinical trials for our product candidates. Nevertheless, we will be responsible for ensuring that each of our preclinical studies and clinical trials is conducted in accordance with the applicable protocol, legal and regulatory requirements and scientific standards and our reliance on CROs will not relieve us of our regulatory responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with regulations, commonly referred to as Good Clinical Practices, or GCPs, for conducting, recording, and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity, and confidentiality of trial participants are protected. We also are required to register ongoing clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within certain timeframes. Failure to do so can result in fines, adverse publicity, and civil and criminal sanctions. For any violations of laws and regulations during the conduct of our preclinical studies and clinical trials, we could be subject to warning letters or enforcement action that may include civil penalties up to and including criminal prosecution.

We and our CROs will be required to comply with regulations, including GCPs, for conducting, monitoring, recording and reporting the results of preclinical studies and clinical trials to ensure that the data and results are scientifically credible and accurate and that the trial patients are adequately informed, among other things, of the potential risks of participating in clinical trials and their rights are protected. These regulations are enforced by FDA, the Competent Authorities of the Member States of the European Economic Area and comparable foreign regulatory authorities for any drugs in clinical development. The FDA enforces GCP regulations through periodic inspections of clinical trial sponsors, principal investigators and trial sites. If we or our CROs fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that, upon inspection, the FDA will determine that any of our future clinical trials will comply with GCPs. In addition, our future clinical trials must be conducted with product candidates produced in accordance with the requirements in cGMP regulations. Our failure or the failure of our CROs to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process and could also subject us to enforcement action.

Although we intend to design the clinical trials for our product candidates, CROs will conduct all of the clinical trials. As a result, many important aspects of our development programs, including their conduct and timing, will be outside of our direct control. Our reliance on third parties to conduct future preclinical studies and clinical trials will also result in less direct control over the management of data developed through preclinical studies and clinical trials than would be the case if we were relying entirely upon our own staff. Communicating with outside parties can also be challenging, potentially leading to mistakes as well as difficulties in coordinating activities. Outside parties may:

- have staffing difficulties;

- fail to comply with contractual obligations;
- experience regulatory compliance issues;
- undergo changes in priorities or become financially distressed; or
- form relationships with other entities, some of which may be our competitors.

These factors may materially adversely affect the willingness or ability of third parties to conduct our preclinical studies and clinical trials and may subject us to unexpected cost increases that are beyond our control. If the CROs do not perform preclinical studies and future clinical trials in a satisfactory manner, breach their obligations to us or fail to comply with regulatory requirements, the development, regulatory approval and commercialization of our product candidates may be delayed, we may not be able to obtain regulatory approval and commercialize our product candidates, or our development programs may be materially and irreversibly harmed. If we are unable to rely on preclinical and clinical data collected by our CROs, we could be required to repeat, extend the duration of, or increase the size of any clinical trials we conduct and this could significantly delay commercialization and require significantly greater expenditures.

We Expect To Rely On Third Parties To Manufacture Our Clinical Product Supplies, And We Intend To Rely On Third Parties For At Least A Portion Of The Manufacturing Process Of Our Product Candidates, If Approved. Our Business Could Be Harmed If The Third Parties Fail To Provide Us With Sufficient Quantities Of Product Inputs Or Fail To Do So At Acceptable Quality Levels Or Prices.

We do not currently own any facility that may be used as our clinical-scale manufacturing and processing facility and must eventually rely on outside vendors to manufacture supplies and process our product candidates. We have not yet caused any product candidates to be manufactured or processed on a commercial scale and may not be able to do so for any of our product candidates. We will make changes as we work to optimize the manufacturing process, and we cannot be sure that even minor changes in the process will result in therapies that are safe and effective.

The facilities used by our contract manufacturers to manufacture our product candidates must be approved by the FDA or other foreign regulatory agencies pursuant to inspections that will be conducted after we submit an application to the FDA or other foreign regulatory agencies. We will not control the manufacturing process of, and will be completely dependent on, our contract manufacturing partners for compliance with regulatory requirements, known as cGMP requirements, for manufacture of our product candidates. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or other regulatory authorities, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities. In addition, we have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved.

Our Relationships With Healthcare Providers, Physicians, And Third-party Payors Will Be Subject To Applicable Anti-kickback, Fraud And Abuse And Other Healthcare Laws And Regulations, Which Could Expose Us To Criminal Sanctions, Civil Penalties, Exclusion From Government Healthcare Programs, Contractual Damages, Reputational Harm And Diminished Profits And Future Earnings.

Although we do not currently have any drugs on the market, once we begin commercializing our product candidates, if ever, we will be subject to additional healthcare statutory and regulatory requirements and enforcement by the federal government and the states and foreign governments in which we conduct our business.

Healthcare providers, physicians and third-party payors play a primary role in the recommendation and prescription of any product candidates that we may develop for which we obtain marketing approval. Our future arrangements with third-party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell, and distribute our product candidates for which we obtain marketing approval. Restrictions under applicable federal and state healthcare laws and regulations include the following:

- the federal Anti-Kickback Statute prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order, or recommendation of, any good or service, for which payment may be made under a state or Federal healthcare program, such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. Violation of the statute may give rise to criminal and/or civil penalties;
- the federal civil and criminal false claims laws, including the civil False Claims Act, impose criminal and civil penalties, including through civil whistleblower or qui tam actions, against individuals or entities for, among other things, knowingly presenting, or causing to be presented, to the federal government, claims for payment or approval from Medicare, Medicaid, or other government payors that are false, fictitious or fraudulent or knowingly making, using or causing to be made or used a false record or statement to avoid, decrease or conceal an obligation to pay money to the federal government, with potential liability including mandatory treble damages and significant per-claim penalties, currently set at $5,500 to $11,000 per false claim. In addition, the government may assert that a claim including items and services resulting from a violation of the federal Anti-Kickback Statute constitutes a false of fraudulent claim for purposes of the False Claims Act;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, as further amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their implementing regulations which impose certain requirements on covered entities, including healthcare providers, health plans and healthcare clearing houses, as well as their business associates that perform certain services with respect to safeguarding the privacy, security and transmission of individually identifiable health information that constitutes protected health information, including mandatory contractual terms and restrictions on the use and/or disclosure of such information without appropriate authorization;
- the federal false statements statute prohibits knowingly and willfully falsifying, concealing, or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items, or services; similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the federal physician payment transparency requirements, sometimes referred to as the “Sunshine Act” under the Affordable Care Act, require manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children’s Health Insurance Program to report to the Department of Health and Human Services information related to physician payments and other transfers of value to physicians and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members and applicable group purchasing organizations; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to healthcare items or services that are reimbursed by non-governmental third-party payors, including private insurers.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of

such laws. If our operations are found to be in violation of any of the laws described above or any other government regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, exclusion from participation in government health care programs, such as Medicare and Medicaid, imprisonment, and the curtailment or restructuring of our operations, any of which could adversely affect our business, financial condition, results of operations, and prospects.

The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order, or use of medicinal products is prohibited in the European Union. The provision of benefits or advantages to physicians is also governed by the national anti-bribery laws of European Union Member States, such as the UK Bribery Act 2010. Infringement of these laws could result in substantial fines and imprisonment.

Payments made to physicians in certain European Union Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician's employer, his or her competent professional organization, and/or the regulatory authorities of the individual European Union Member States. These requirements are provided in the national laws, industry codes, or professional codes of conduct applicable in the European Union Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines, or imprisonment.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations, or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations, including anticipated activities to be conducted by our sales team, are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal, and administrative penalties, damages, fines, exclusion from government funded healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations. If any of the physicians or other providers or entities with whom we expect to do business are found to be not in compliance with applicable laws, they may be subject to criminal, civil, or administrative sanctions, including exclusions from government funded healthcare programs. Liabilities they incur pursuant to these laws could result in significant costs or an interruption in operations, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Risks Related to Employee Matters, Managing Growth and Other Risks Related to Our Business

Our Future Success Depends On Our Ability To Retain Key Executives And To Attract, Retain And Motivate Qualified Personnel.

We are highly dependent on the research and development, clinical, commercial and business development expertise of Dr. Rodger Novak, our President and Chief Executive Officer, Dr. Sven Ante (Bill) Lundberg, our Chief Scientific Officer, Dr. Samarth Kulkarni, our Chief Business Officer, as well as the other principal members of our management, scientific and clinical team. Although we have entered into employment letter agreements with our executive officers, each of them may terminate their employment with us at any time. We do not maintain "key person" insurance for any of our executives or other employees. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. The loss of the services of our executive officers or other key employees or consultants could impede the achievement of our research, development and commercialization objectives and seriously harm our ability to successfully implement our business strategy. If we are unable to retain high quality personnel, our ability to pursue our growth strategy will be limited.

We will also need to recruit and retain qualified scientific and clinical personnel as we advance the development of our product candidates and product pipeline. We may be unable to hire, train, retain or motivate these key personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. Failure to succeed in clinical trials may make it more challenging to recruit and retain qualified scientific personnel.

In addition, being organized in Switzerland may restrict our ability to attract, motivate and retain the required level of qualified personnel. In Switzerland, new legislation affecting public companies has been passed that, among other things, (i) imposes an annual binding shareholders' "say on pay" vote with respect to the compensation of executive management, including executive officers and the board of directors; (ii) prohibits severance, advances, transaction premiums and similar payments to executive officers and directors; and (iii) requires companies to specify various compensation-related matters in their articles of association, thus requiring them to be approved by a shareholders' vote.

We Will Need To Develop And Expand Our Company, And We May Encounter Difficulties In Managing This Development And Expansion, Which Could Disrupt Our Operations.

As of September 2, 2016, we had 77 full-time employees and, in connection with becoming a public company, we expect to increase our number of employees and the scope of our operations. To manage our anticipated development and expansion, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Also, our management may need to divert a disproportionate amount of its attention away from its day-to-day activities and devote a substantial amount of time to managing these development activities. Due to our limited resources, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. This may result in weaknesses in our infrastructure, give rise to operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. The physical expansion of our operations may lead to significant costs and may divert financial resources from other projects, such as the development of our product candidates. If our management is unable to effectively manage our expected development and expansion, our expenses may increase more than expected, our ability to generate or increase our revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance and our ability to commercialize our product candidates, if approved, and compete effectively will depend, in part, on our ability to effectively manage the future development and expansion of our Company.

Our Employees, Principal Investigators, Consultants And Commercial Partners May Engage In Misconduct Or Other Improper Activities, Including Non-compliance With Regulatory Standards And Requirements And Insider Trading.

We are exposed to the risk of fraud or other misconduct by our employees, consultants, and commercial partners, and, if we commence clinical trials, our principal investigators. Misconduct by these parties could include intentional failures to comply with FDA regulations or the regulations applicable in the European Union and other jurisdictions, provide accurate information to the FDA, the European Commission, and other regulatory authorities, comply with healthcare fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs, and other business arrangements. Such misconduct also could involve the improper use of information obtained in the course of clinical trials or interactions with the FDA or other regulatory authorities, which could result in regulatory sanctions and cause serious harm to our reputation. We intend to adopt, prior to the completion of this offering, a code of conduct applicable to all of our employees, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may

not be effective in controlling unknown or unmanaged risks or losses or in protecting us from government investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. Additionally, we are subject to the risk that a person could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, financial condition, results of operations, and prospects, including the imposition of civil, criminal and administrative penalties, damages, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

If We Fail To Comply With Environmental, Health And Safety Laws And Regulations, We Could Become Subject To Fines Or Penalties Or Incur Costs That Could Harm Our Business.

We will become subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations will involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also may produce hazardous waste products. We generally anticipate contracting with third parties for the disposal of these materials and wastes. We will not be able to eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from any use by us of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties for failure to comply with such laws and regulations.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological or hazardous materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Our failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Product Liability Lawsuits Against Us Could Cause Us To Incur Substantial Liabilities And Could Limit Commercialization Of Any Product Candidates That We May Develop.

We will face an inherent risk of product liability exposure related to the testing of our product candidates in human clinical trials and will face an even greater risk if we commercially sell any product candidates that we may develop. If we cannot successfully defend ourselves against claims that our product candidates caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend the related litigation;
- substantial monetary awards to trial participants or patients;
- loss of revenue; and
- the inability to commercialize any product candidates that we may develop.

Although we maintain product liability insurance coverage, it may not be adequate to cover all liabilities that we may incur. We anticipate that we will need to increase our insurance coverage when we begin clinical trials and if we successfully commercialize any product candidate. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

If We Fail To Establish And Maintain Proper And Effective Internal Control Over Financial Reporting, Our Operating Results And Our Ability To Operate Our Business Could Be Harmed.

Ensuring that we have adequate internal financial and accounting controls and procedures in place so that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles. In connection with this offering, we intend to begin the process of documenting, reviewing and improving our internal controls and procedures for compliance with Section 404 of the Sarbanes-Oxley Act of 2002, or SOX, which will require annual management assessment of the effectiveness of our internal control over financial reporting. We have begun recruiting additional finance and accounting personnel with certain skill sets that we will need as a public company.

Implementing any appropriate changes to our internal controls may distract our officers and employees, entail substantial costs to modify our existing processes and take significant time to complete. These changes may not, however, be effective in maintaining the adequacy of our internal controls, and any failure to maintain that adequacy, or consequent inability to produce accurate financial statements on a timely basis, could increase our operating costs and harm our business. In addition, investors' perceptions that our internal controls are inadequate or that we are unable to produce accurate financial statements on a timely basis may harm our common share price and make it more difficult for us to effectively market and sell our service to new and existing customers.

Our Internal Computer Systems, Or Those Of Our Collaborators Or Other Contractors Or Consultants, May Fail Or Suffer Security Breaches, Which Could Result In A Material Disruption Of Our Product Development Programs.

Our internal computer systems and those of our current and any future collaborators and other contractors or consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we have not experienced any such material system failure, accident or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a disruption of our development programs and our business operations, whether due to a loss of our trade secrets or other proprietary information or other similar disruptions. For example, the loss of clinical trial data from future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability, our competitive position could be harmed and the further development and commercialization of our product candidates could be delayed.

Our Business Is Subject To Economic, Political, Regulatory And Other Risks Associated With International Operations.

Our business is subject to risks associated with conducting business internationally. We and a number of our suppliers and collaborative and clinical study relationships are located outside the United States. Accordingly, our future results could be harmed by a variety of factors, including:

- economic weakness, including inflation, or political instability in particular non-U.S. economies and markets;

- differing regulatory requirements for drug approvals in non-U.S. countries;
- potentially reduced protection for intellectual property rights;
- difficulties in compliance with non-U.S. laws and regulations;
- changes in non-U.S. regulations and customs, tariffs and trade barriers;
- changes in non-U.S. currency exchange rates and currency controls;
- changes in a specific country's or region's political or economic environment;
- trade protection measures, import or export licensing requirements or other restrictive actions by U.S. or non-U.S. governments;
- negative consequences from changes in tax laws;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- difficulties associated with staffing and managing international operations, including differing labor relations;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geo-political actions, including war and terrorism, or natural disasters including floods and fires.

Risks Related to Intellectual Property

If We Are Unable To Adequately Protect Our Proprietary Technology Or Obtain And Maintain Patent Protection For The Products We Develop And For Our Technology And Product Candidates, Or If The Scope Of The Patent Protection Obtained Is Not Sufficiently Broad, Our Competitors Could Develop And Commercialize Products And Technology Similar Or Identical To Ours, And Our Ability To Successfully Commercialize Any Product Candidates We May Develop, And Our Technology May Be Adversely Affected.

Our success depends in large part on our ability to obtain and maintain proprietary or intellectual property protection in the United States and other countries with respect to our CRISPR/Cas9 platform technology and any proprietary product candidates and technology we develop. Currently, no patents covering our CRISPR/Cas9 platform or product candidates have been issued to us in the United States and one of the patent applications we have licensed that may cover our platform is the subject of an interference proceeding at the United States Patent and Trademark Office, or USPTO, which is discussed below. We seek to protect our proprietary position by in-licensing intellectual property to cover our platform technology and filing patent applications in the United States and abroad related to our technologies and product candidates that are important to our business. We also rely on trade secrets, know-how and continuing technological innovation to develop and maintain our proprietary and intellectual property position. If we or our licensors are unable to obtain or maintain patent protection with respect to our CRISPR/Cas9 platform technology and any proprietary products and technology we develop, our business, financial condition, results of operations and prospects could be materially harmed.

The scope of patent protection that will be available to us in the United States and in other countries is uncertain. Changes in either the patent laws or their interpretation in the United States and other countries may diminish our ability to protect our inventions, obtain, maintain and enforce our intellectual property rights and, more generally, could affect the value of our intellectual property or narrow the scope of our owned and licensed patents. With respect to both in-licensed and owned intellectual property, we cannot predict whether the patent applications we and our licensors are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient protection from competitors, or if any such patents will be found invalid, unenforceable or not infringed if challenged by our competitors.

The patent prosecution process is expensive, time-consuming, and complex, and we may not be able to file, prosecute, maintain, enforce, or license all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output in time to obtain patent protection. Although we enter into non-disclosure and confidentiality agreements with parties who have access to confidential or patentable aspects of our research and development output, such as our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants advisors, and other third parties, any of these parties may breach the agreements and disclose such output before a patent application is filed, thereby jeopardizing our ability to seek patent protection. In addition, publications of discoveries in the scientific literature often lag behind the actual discoveries and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot know with any degree of certainty whether the inventors of our licensed patents and applications were the first to make the inventions claimed in our owned or any licensed patents or pending patent applications, or that we were the first to file for patent protection of such inventions.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much litigation in recent years. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued which protect our technology or product candidates or which effectively prevent others from commercializing competitive technologies and product candidates.

Moreover, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if patent applications we license or own currently or in the future issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we hold or in-license may be challenged, narrowed, circumvented, or invalidated by third parties. Consequently, we do not know whether any of our platform advances and product candidates will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner. For example, we are aware that third parties have suggested the use of the CRISPR technology in conjunction with a protein other than Cas9. Our owned and in-licensed patents may not cover such technology. If our competitors commercialize the CRISPR technology in conjunction with a protein other than Cas9, our business, financial condition, results of operations, and prospects could be materially adversely affected.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability and our patents may be challenged in the courts or patent offices in the United States and abroad. We may be subject to a third party preissuance submission of prior art to the USPTO or other patent office abroad or become involved in opposition, derivation, revocation, reexamination, post-grant review and inter partes review, or interference proceedings, or litigation challenging our patent rights or the patent rights of others. Indeed, certain of our fundamental intellectual property has been subject to third party observations outside the United States and interference proceedings within the United States. Competitors may claim that they invented the inventions claimed in such issued patents or patent applications prior to our inventors, or may have filed patent applications before our inventors did. A competitor may also claim that our products and services infringe its patents and that we therefore cannot practice our technology as claimed under our patent applications, if issued. An adverse determination in any such claim may result in our inability to manufacture or commercialize products without infringing third-party patent rights. Competitors may also contest our patents, if issued, by showing that the invention was not patent-eligible, was not novel, was obvious or that the patent claims failed any other requirement for patentability. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights or allow third parties to commercialize our technology or products and compete directly with us, without payment to us. Moreover, we, or one of our licensors, may have to participate in additional interference proceedings declared by the USPTO to determine priority of invention or in post-grant challenge proceedings, such as oppositions in a foreign patent office, that challenge priority of

invention or other features of patentability. Such challenges may result in loss of patent rights, loss of exclusivity or freedom to operate, or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and product candidates. Such proceedings also may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates.

We Are Required To Pay Royalties Under Our License Agreements With Third-party Licensors, And We Must Use Commercially Reasonable Diligence Efforts And Meet Milestones To Maintain Our License Rights.

Under our in-license agreements, including our in-license agreements with Dr. Emmanuelle Charpentier, we will be required to pay royalties based on our revenues from sales of our products utilizing the licensed technologies and these royalty payments could adversely affect the overall profitability for us of any products that we may seek to commercialize. Under each of our in-license agreements with, Dr. Charpentier, we have an obligation to use commercially reasonable efforts to develop and obtain regulatory approval to market a licensed therapeutic product. Our in-license agreements with Dr. Charpentier also include an obligation to file a U.S. Investigational New Drug application (or its equivalent in a major market country) by April 2021 and an obligation to file a U.S. Investigational New Drug application (or its equivalent in a major market country) by April 2024. We may not be successful in meeting these obligations in the future on a timely basis or at all. Our failure to meet these obligations may give Dr. Charpentier the right to terminate our license rights. We will need to outsource and rely on third parties for many aspects of the clinical development of the products covered under our license agreements. Delay or failure by these third parties could adversely affect our ability to meet our diligence obligations and the continuation of our license agreements with third-party licensors.

Some Of Our In-licensed Patent Applications Are Subject To Priority Disputes And Inventorship Disputes, Including An Active Interference Proceeding With The Broad Institute, Massachusetts Institute of Technology, President And Fellows of Harvard College, In Front Of The United States Patent And Trademark Office. In Addition, Our Owned And In-Licensed Patents And Other Intellectual Property May Be Subject To Further Priority Disputes Or To Inventorship Disputes And Similar Proceedings. If We Or Our Licensors Are Unsuccessful In Any Of These Proceedings, We May Be Required To Obtain Licenses From Third Parties, Which May Not Be Available On Commercially Reasonable Terms Or At All, Or To Cease The Development, Manufacture, And Commercialization Of One Or More Of The Product Candidates We May Develop, Which Could Have A Material Adverse Impact On Our Business.

In January 2016, at our request, the USPTO declared an interference between one of the pending U.S. patent applications we licensed from Dr. Emmanuelle Charpentier and twelve issued U.S. patents, and subsequently added one U.S. patent application, owned jointly by the Broad Institute and Massachusetts Institute of Technology and, in some instances, the President and Fellows of Harvard College, collectively referred to as the Broad. An interference is a proceeding conducted at the USPTO by the Patent Trial and Appeal Board, or PTAB, to determine which party was the first to invent subject matter claimed by both of these parties. There are currently two parties to this interference. Because our application was filed first, the USPTO designated Dr. Charpentier, the Regents of the University of California, or California, and the University of Vienna, or Vienna, collectively as “Senior Party” and designated Broad as “Junior Party.” Following motions by the parties and, potentially, a determination regarding which of the two parties was the first to invent, the PTAB might conclude that the contested subject matter is not patentable to the Senior Party and is patentable to the Junior Party, which in this case could preclude our U.S. patent applications from issuing as patents, in which case the proceedings would result in our losing the right to protect core innovations and our freedom to practice our core gene editing technology. If that happens, it would materially harm our business. Other outcomes could be more favorable to us. They include a determination that the contested subject matter is patentable to the Senior Party

and not patentable to the Junior Party, which in this case could result in the cancellation of some or all of Broad's claims. Intermediate outcomes could also occur, including a determination that the contested subject matter is not patentable to either party, or that the interference should be dismissed. Either party can appeal an adverse decision to the U.S. Court of Appeals for the Federal Circuit. In any case, it may be years before there is a final determination on priority. Pursuant to the terms of the license agreement with Dr. Charpentier, we are responsible for covering or reimbursing Dr. Charpentier's patent prosecution defense and related costs associated with our in-licensed technology.

Furthermore, we may be involved in further interference proceedings or other disputes in the future. For example, ToolGen Inc., or ToolGen, filed Suggestions of Interference in the USPTO on April 13, 2015, and December 3, 2015, suggesting that they believe some of the claims in pending U.S. applications owned by ToolGen (U.S. Serial No. 14/685,568 and U.S. Serial No. 14/685,510, respectively) interfere with certain claims in five of the Broad patents currently involved in the interference with Dr. Emmanuelle Charpentier, California and Vienna. The USPTO may, in the future, declare an interference between our patent application and one or more ToolGen patent applications. We are also aware of additional third parties that have pending patent applications relating to CRISPR technologies, which similarly may or may not lead to further interference proceedings. For example, Rockefeller University has filed a continuation application (U.S. Serial No. 14/324,960) of an application filed by the Broad, but which names Rockefeller's employee Luciano Marraffini as co-inventor of CRISPR/Cas9 technology; Vilnius University has filed applications in the United States and abroad (published internationally as WO2013/141680 and WO2013/142578), Harvard University has filed applications in the United States and abroad (published internationally as WO2014/099744), and Sigma-Aldrich has filed applications in the United States and abroad (published internationally as WO2014/089290), each claiming aspects of CRISPR/Cas9 technology based on applications claiming priority to provisional filings in 2012. Numerous other filings are based on provisional applications filed after 2012.

Both Broad and Toolgen have filed international counterparts of their U.S. applications, some of which were granted in Europe and/or other foreign jurisdictions. We and third parties have initiated opposition proceedings against some of these grants, and we may in the future oppose other grants to these or other applicants. Similarly, our intellectual property may in the future become involved in opposition proceedings in Europe or other foreign jurisdictions.

If we or our licensors are unsuccessful in any interference proceedings or other priority or validity disputes (including any patent oppositions) to which we or they are subject or become subject to, we may lose valuable intellectual property rights through the loss or narrowing of one or more of our patent applications. If we or our licensors are unsuccessful in any interference proceeding or other dispute, we may be required to seek to obtain and maintain licenses from third parties, including parties involved in any such interference proceedings or other disputes. These third parties would be under no obligation to grant to us any such license and such licenses may not be available on commercially reasonable terms or at all, or may be non-exclusive. If we are unable to obtain and maintain such licenses, we and our partners may need to cease the practice of our core gene editing, and the development, manufacture, and commercialization of one or more of the product candidates we may develop. The loss of exclusivity or the narrowing of our patent claims could limit our ability to stop others from using or commercializing similar or identical technology and products. Any of the foregoing could result in a material adverse effect on our business, financial condition, results of operations, or prospects. If we are unsuccessful in the interference proceedings with Broad, we and our partners may be blocked from commercializing any products based on our core gene editing technology. Even if we are successful in an interference proceeding or other similar disputes, it could result in substantial costs and be a distraction to management and other employees.

The Intellectual Property That Protects Our Core Gene editing Technology Is Jointly Owned, And Our License Is From Only One Of The Joint Owners, Materially Limiting Our Rights In The United States And Abroad.

The family of patent applications we have in-licensed from Dr. Emmanuelle Charpentier is the foundational patent protection for our core gene editing technology. However, that family includes other named inventors who assigned their rights either to California or to Vienna. As such, the intellectual property is currently co-owned by Dr. Charpentier, California, and Vienna. Although we have in-licensed Dr. Charpentier's rights to the intellectual property, we do not have a license to California or Vienna's rights to the intellectual property. As explained more fully below, that leaves us in a position of holding only non-exclusive rights to the patent rights that protect our core gene editing technology.

In the absence of an agreement among co-owners, jointly owned patent rights are subject to default rules pertaining to the rights and obligations of joint owners, which vary by jurisdiction, and in some countries we may not even have valid non-exclusive rights to that technology. For example, some countries, in particular European countries, require the consent of all joint owners to exploit, license or assign jointly owned patents. We did not receive consents from California or Vienna before entering into our license agreements with Dr. Emmanuelle Charpentier. Accordingly, unless and until we receive such consents, our license agreements may not be recognized in those countries requiring co-owner consent to a license. In countries where our license is not recognized, we may be subject to claims of patent infringement by California and/or Vienna to the extent that we are doing business in those countries or choose to do business there in the future. Even in countries that do not require co-owner consent to a license, we may be prohibited from exploiting the intellectual property, or we may be required to pay certain monies to California or Vienna to account for our exploitation of the intellectual property in those countries. As a result, in the absence of an agreement with California and Vienna, there may be countries in which we are unable to do business, or unable to do business on commercially reasonable terms, which could impact our commercialization plans and the willingness of strategic partners and other third parties to do business with us.

In the United States, each co-owner has the freedom to license and exploit the technology. As a result, we do not have exclusive access to any intellectual property rights that Dr. Emmanuelle Charpentier co-owns with another entity, such as California and Vienna. Our license with Dr. Charpentier is therefore non-exclusive with respect to such co-owned rights. Furthermore, in the United States each co-owner is required to be joined as a party to any claim or action we may wish to bring to enforce those patent rights. Moreover, in the United States, non-exclusive licenses have no standing to bring a patent infringement action before a court. Therefore, for the patents owned with California and Vienna we have no ability to pursue third party infringement claims without cooperation of California and Vienna and potentially their licensees. If we are unable to enforce our core patent rights licensed from Dr. Charpentier, we may be unable to prevent third parties from competing with us and may be unable to persuade companies to sublicense our technology, either of which could have a material adverse effect on our business.

If We Experience Disputes With The Third Parties That We In-license Intellectual Property Rights From, We Could Lose License Rights That Are Important To Our Business.

We license our foundational intellectual property from a third party, and we expect to continue to in-license additional third-party intellectual property rights as we expand our CRISPR/Cas9 gene-editing technology. Disputes may arise with the third parties from whom we license our intellectual property rights from for a variety of reasons, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under our collaborative development relationships and obligations associated with sublicensing;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;

- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

In addition, the agreements under which we currently license intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations, or may conflict in such a way that puts us in breach of one or more agreements, which would make us suspectible to lengthy and expensive disputes with one or more of our licensing partners. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations, and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates, which could have a material adverse effect on our business, financial conditions, results of operations, and prospects.

We May Not Be Successful In Obtaining Necessary Rights To Any Product Candidates We May Develop Through Acquisitions And In-licenses.

We currently have rights to intellectual property, through in-licenses from third parties, to identify and develop product candidates. Many pharmaceutical companies, biotechnology companies, and academic institutions are competing with us in the field of gene-editing technology and filing patent applications potentially relevant to our business. For example, we are aware of several third party patent applications that, if issued, may be construed to cover our CRISPR/Cas9 technology and product candidates. In order to avoid infringing these third party patents, we may find it necessary or prudent to obtain licenses from such third party intellectual property holders. We may also require licenses from third parties for certain modified or improved components of CRISPR/Cas9 technology, such as modified nucleic acids, as well as non-CRISPR/Cas9 technologies such as delivery methods that we are evaluating for use with product candidates we may develop. In addition, with respect to any patents we co-own with third parties, we may require licenses to such co-owners' interest to such patents. However, we may be unable to secure such licenses or otherwise acquire or in-license any compositions, methods of use, processes, or other intellectual property rights from third parties that we identify as necessary for product candidates we may develop and CRISPR/Cas9 technology. The licensing or acquisition of third party intellectual property rights is a competitive area, and several more established companies may pursue strategies to license or acquire third party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire third party intellectual property rights on terms that would allow us to make an appropriate return on our investment or at all. If we are unable to successfully obtain rights to required third party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of the relevant program or product candidate, or discontinue the practice of our core CRISPR/Cas9 gene-editing technology, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Issued Patents Covering Our Technology And Product Candidates Could Be Found Invalid Or Unenforceable If Challenged In Court.

If we or one of our licensors initiated legal proceedings against a third party to enforce a patent covering a product candidate we may develop or our technology, including CRISPR/Cas9, the defendant could counterclaim that such patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, or non-enablement.

Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. Third parties have raised challenges to the validity of certain of our in-licensed patent applications, such as our in-licensed CRISPR/Cas9 patent applications in the context of third party observations filed in Europe, and may in the future raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Mechanisms for challenging the validity of patents in patent offices include re-examination, post-grant review, *inter partes* review, interference proceedings, derivation proceedings, and equivalent proceedings in foreign jurisdictions (e.g., opposition proceedings). Such proceedings could result in the loss of our patent applications or patents, or their narrowing in such a way that they no longer cover our technology or platform, or any product candidates that we may develop. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art. If a third party were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our technology or platform, or any product candidates that we may develop. Such a loss of patent protection would have a material adverse impact on our business, financial condition, results of operations, and prospects.

The Intellectual Property Landscape Around Gene-Editing Technology, Including CRISPR/Cas9, Is Highly Dynamic, And Third Parties May Initiate And Prevail In Legal Proceedings Alleging That The Patents That We In-License Or Own Are Invalid Or That We Are Infringing, Misappropriating, Or Otherwise Violating Their Intellectual Property Rights, The Outcome Of Which Would Be Uncertain And Could Have A Material Adverse Effect On The Success Of Our Business.

The field of gene editing, especially in the area of CRISPR/Cas9 technology, is still in its infancy, and no such products have reached the market. Due to the intense research and development that is taking place by several companies, including us and our competitors, in this field, the intellectual property landscape is in flux, and it may remain uncertain for the coming years. There may be significant intellectual property related litigation and proceedings, in addition to the ongoing interference proceedings, relating to our owned and in-licensed, and other third party, intellectual property and proprietary rights in the future.

Our commercial success depends upon our ability and the ability of our collaborators to develop, manufacture, market, and sell any product candidates that we may develop and use our proprietary technologies without infringing, misappropriating, or otherwise violating the intellectual property and proprietary rights of third parties. The biotechnology and pharmaceutical industries are characterized by extensive litigation regarding patents and other intellectual property rights. We are subject to and may in the future become party to, or threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our technology and any product candidates we may develop, including re-examination interference proceedings, post-grant review, *inter partes* review, and derivation proceedings before the USPTO and similar proceedings in foreign jurisdictions such as oppositions before the European Patent Office. Third parties, including parties involved in ongoing interference proceedings, may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of their merit. We are aware of certain third party patents and patent applications including, for example, the Broad patents involved in the current interference proceeding described above that may be asserted to encompass our CRISPR/Cas9 technology. If we are unable to prove that these patents are invalid and we are not able to obtain or maintain a license on commercially reasonable terms, such third parties could potentially assert infringement claims against us, which could have a material adverse effect on the conduct of our business. If we are found to infringe such third party patents, we and our partners may be required to pay damages, cease commercialization of the infringing technology, including our core CRISPR/Cas9 gene-editing technology, or obtain a license from such third parties, which may not be available on commercially reasonable terms or at all. Additionally we have not performed any freedom-to-operate analysis on specific product candidates at this stage to identify potential infringement risks. A proper analysis of that type will not be feasible until specific product candidates are designed.

Even if we believe third-party intellectual property claims are without merit, there is no assurance that a court would find in our favor on questions of infringement, validity, enforceability, ownership, or priority. A

court of competent jurisdiction could hold that these third party patents are valid, enforceable, and infringed, which could materially and adversely affect our ability to commercialize any product candidates we may develop and any other product candidates or technologies covered by the asserted third party patents. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. If we are found to infringe a third party's intellectual property rights, and we are unsuccessful in demonstrating that such patents are invalid or unenforceable, we could be required to obtain a license from such third party to continue developing, manufacturing, and marketing any product candidates we may develop and our technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. We also could be forced, including by court order, to cease developing, manufacturing, and commercializing the infringing technology or product candidates. In addition, we could be found liable for significant monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent or other intellectual property right. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar material adverse effect on our business, financial condition, results of operations, and prospects.

Intellectual Property Litigation Could Cause Us To Spend Substantial Resources And Distract Our Personnel From Their Normal Responsibilities.

Litigation or other legal proceedings relating to intellectual property claims, with or without merit, is unpredictable and generally expensive and time-consuming and is likely to divert significant resources from our core business, including distracting our technical and management personnel from their normal responsibilities and generally harm our business. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation in certain countries, including the United States, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common shares. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities.

We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Accordingly, despite our efforts, we may not be able to prevent third parties from infringing or misappropriating or successfully challenging our intellectual property rights. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

Obtaining And Maintaining Our Patent Protection Depends On Compliance With Various Procedural, Document Submission, Fee Payment, And Other Requirements Imposed By Government Patent Agencies And Our Patent Protection Could Be Reduced Or Eliminated For Non-compliance With These Requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other government fees on patents and applications will be due to be paid to the USPTO and various government patent agencies outside of the United States over the lifetime of our owned or licensed patents and applications. In certain circumstances, we rely on our licensing partners to pay these fees due to U.S. and non-U.S. patent agencies. The USPTO and various non-U.S. government agencies require compliance with several procedural, documentary, fee payment, and other similar provisions during the patent application process. In addition, periodic maintenance fees on issued patents

often must be paid to the USPTO and foreign patent agencies over the lifetime of the patent. We are also dependent on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property. In some cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in a partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we or our licensors fail to maintain the patents and patent applications covering our product candidates, we may not be able to stop a competitor from marketing drugs that are the same as or similar to our product candidates, which would have a material adverse effect on our business.

Some Intellectual Property Which We Have In-licensed May Have Been Discovered Through Government Funded Programs And Thus May Be Subject To Federal Regulations Such As "march-in" Rights, Certain Reporting Requirements And A Preference For U.S.-based Manufacturers. Compliance With Such Regulations May Limit Our Exclusive Rights, And Limit Our Ability To Contract With Non-U.S. Manufacturers.

The intellectual property rights to which we have in-licensed under Dr. Emmanuelle Charpentier's joint interest are co-owned by California, which has indicated that the invention was made under Grant No. GM081879 awarded by the National Institute of Health. These rights are therefore subject to certain federal regulations. The U.S. government has certain rights pursuant to the Bayh-Dole Act of 1980, or Bayh-Dole Act, to patents covering government rights in certain inventions developed under a government-funded program. These rights include a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right to require us to grant exclusive, partially exclusive, or non-exclusive licenses to any of these inventions to a third party if it determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; or (iii) government action is necessary to meet requirements for public use under federal regulations, also referred to as "march-in rights." The U.S. government also has the right to take title to these inventions if we, or the applicable contractor, fail to disclose the invention to the government and fail to file an application to register the intellectual property within specified time limits. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us or the applicable contractor to expend substantial resources. In addition, the U.S. government requires that any products embodying the subject invention or produced through the use of the subject invention be manufactured substantially in the United States. The manufacturing preference requirement can be waived if the owner of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible. This preference for U.S. manufacturers may limit our ability to contract with non-U.S. product manufacturers for products covered by such intellectual property. To the extent any of our current or future patents covering inventions is generated through the use of U.S. government funding, the provisions of the Bayh-Dole Act may similarly apply.

We May Not Be Able To Protect Our Intellectual Property And Proprietary Rights Throughout The World.

Filing, prosecuting and defending patents on our product candidates in all countries throughout the world would be prohibitively expensive. The requirements for patentability may differ in certain countries, particularly in developing countries. Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws. Additionally, the patent laws of some foreign countries do not afford intellectual property protection to the same extent as the laws of the United States. For example, unlike patent law in the United States, the patent law in Europe and many other jurisdictions precludes the patentability of methods of treatment of the human body and imposes substantial restrictions on the scope of claims it will grant if broader than specifically disclosed embodiments.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not pursued and obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection but enforcement is not as strong as that in the United States. These products may compete with our product candidates, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our intellectual property and proprietary rights generally. Proceedings to enforce our intellectual property and proprietary rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or any of our licensors is forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations, and prospects may be adversely affected. Patent protection must ultimately be sought on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. Accordingly, we may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries.

Changes To The Patent Law In The United States And Other Jurisdictions Could Diminish The Value Of Patents In General, Thereby Impairing Our Ability To Protect Our Product Candidates.

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity and is therefore costly, time consuming and inherently uncertain. Recent patent reform legislation in the United States and other countries, including the Leahy-Smith America Invents Act, or Leahy-Smith Act, signed into law on September 16, 2011, could increase those uncertainties and costs. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art and provide more efficient and cost-effective avenues for competitors to challenge the validity of patents. In addition, the Leahy-Smith Act has transformed the U.S. patent system into a “first to file” system. The first-to-file provisions, however, only became effective on March 16, 2013. Accordingly, it is not yet clear what, if any, impact the Leahy-Smith Act will have on the operation of our business. However, the Leahy-Smith Act and its implementation could make it more difficult to obtain patent protection for our inventions and increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could harm our business, results of operations and financial condition.

The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. For example, in *Association for Molecular Pathology v. Myriad Genetics, Inc*., the Supreme Court ruled that a “naturally occurring DNA segment is a product of nature and not patent eligible merely because it has been

isolated," and invalidated Myriad Genetics's claims on the isolated BRCA1 and BRCA2 genes. Certain claims of our patents relate to CRISPR/Cas9 gene-editing technology as well as guide components that are directed to naturally occurring DNA sequences. To the extent that such claims are deemed to be directed to natural products, or to lack an inventive concept above and beyond an isolated natural product, a court may decide the claims are invalid under *Myriad*. Additionally, there have been recent proposals for additional changes to the patent laws of the United States and other countries that, if adopted, could impact our ability to obtain patent protection for our proprietary technology or our ability to enforce our proprietary technology. Depending on future actions by the U.S. Congress, the U.S. courts, the USPTO and the relevant law-making bodies in other countries, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. Europe's planned Unified Patent Court, scheduled to begin in 2017, may particularly present uncertainties for our ability to protect and enforce our patent rights against competitors in Europe. While that new court is being implemented to provide more certainty and efficiency to patent enforcement throughout Europe, it will also provide our competitors with a new forum to use to centrally revoke our European patents. It will be several years before we will understand the scope of patent rights that will be recognized and the strength of patent remedies that will be provided by that court. We will have the right to opt our patents out of that system over the first seven years of the court, but doing so may preclude us from realizing the benefits of the new unified court.

If We Are Unable To Protect The Confidentiality Of Our Trade Secrets, Our Business And Competitive Position Would Be Harmed.

In addition to seeking patents for some of our technology and product candidates, we also rely on trade secrets and confidentiality agreements to protect our unpatented know-how, technology, and other proprietary information and to maintain our competitive position. Trade secrets and know-how can be difficult to protect. In particular, we anticipate that with respect to our technology platform, these trade secrets and know-how will over time be disseminated within the industry through independent development, the publication of journal articles describing the methodology, and the movement of personnel from academic to industry scientific positions.

We seek to protect these trade secrets and other proprietary technology, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors, and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. We cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive, and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third party, we would have no right to prevent them, or those to whom they communicate it, from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor or other third party, our competitive position would be materially and adversely harmed.

If We Do Not Obtain Patent Term Extension And Data Exclusivity For Any Product Candidates We May Develop, Our Business May Be Materially Harmed.

Depending upon the timing, duration and specifics of any FDA marketing approval of any product candidates we may develop, one or more of our U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Action of 1984, or Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent extension term of up to five years as compensation for patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term

of a patent beyond a total of 14 years from the date of product approval, only one patent may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. However, we may not be granted an extension because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents, or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or term of any such extension is less than we request, we will be unable to rely on our patent position to forestall the marketing of competing products following our patent expiration, and our business, financial condition, results of operations, and prospects could be materially harmed.

Intellectual Property Rights Do Not Necessarily Address All Potential Threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- others may be able to make gene therapy products that are similar to any product candidates we may develop or utilize similar gene therapy technology but that are not covered by the claims of the patents that we license or may own in the future;
- we, or our license partners or current or future collaborators, might not have been the first to make the inventions covered by the issued patent or pending patent application that we license or may own in the future;
- we, or our license partners or current or future collaborators, might not have been the first to file patent applications covering certain of our or their inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our owned or licensed intellectual property rights;
- it is possible that our pending licensed patent applications or those that we may own in the future will not lead to issued patents;
- issued patents that we hold rights to may be held invalid or unenforceable, including as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable;
- the patents of others may harm our business; and
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could have a material adverse effect on our business, financial condition, results of operations, and prospects.

We May Be Subject To Claims That Our Employees, Consultants, Or Advisors Have Wrongfully Used Or Disclosed Alleged Trade Secrets Of Their Current Or Former Employers Or Claims Asserting Ownership Of What We Regard As Our Own Intellectual Property.

Many of our employees, consultants, and advisors are currently or were previously employed at universities or other biotechnology or pharmaceutical companies. Although we try to ensure that our employees, consultants, and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these individuals have used or disclosed intellectual property, including trade secrets

or other proprietary information, of any such individual's current or former employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Risks Related to This Offering and Ownership of Our Common Shares

If You Purchase Our Common Shares In This Offering, You Will Incur Immediate And Substantial Dilution In The Book Value Of Your Shares.

You will suffer immediate and substantial dilution in the net tangible book value of our common shares you purchase in this offering. Assuming an initial public offering price of $16.00 per share, the midpoint of the price range set forth on the cover page of this prospectus, after giving effect to this offering and the concurrent private placement, purchasers of common shares in this offering will experience immediate dilution of $10.06 per share in net tangible book value of our common shares. In addition, after giving effect to this offering and the concurrent private placement, investors purchasing common shares in this offering will contribute 24.3% of the total amount invested by shareholders since inception but will only own 11.8% of the common shares outstanding. In the past, we issued options and other securities to acquire common shares at prices significantly below the initial public offering price. To the extent these outstanding securities are ultimately exercised, investors purchasing common shares in this offering will sustain further dilution. See "Dilution" for a more detailed description of the dilution to new investors in the offering.

We Have Broad Discretion In How We Use The Proceeds Of This Offering And The Concurrent Private Placement And May Not Use These Proceeds Effectively, Which Could Affect Our Results Of Operations And Cause Our Common Share Price To Decline.

We will have considerable discretion in the application of the net proceeds of this offering and the concurrent private placement. We anticipate that we will use the net proceeds from this offering to advance the development of our hemoglobinpathy programs and to progress additional pipeline candidates and to further optimize our CRISPR/Cas9 gene editing platform and delivery technologies as well as for manufacturing, working capital and general corporate purposes, which may include funding for the hiring of additional personnel, capital expenditures and the costs of operating as a public company. As a result, investors will be relying upon management's judgment with only limited information about our specific intentions for the use of the balance of the net proceeds of this offering and the concurrent private placement. We may use the net proceeds for purposes that do not yield a significant return or any return at all for our shareholders. In addition, pending their use, we may invest the net proceeds from this offering and the concurrent private placement in a manner that does not produce income or that loses value.

We Will Incur Increased Costs As A Result Of Operating As A Public Company And Our Management Will Be Required To Devote Substantial Time To New Compliance Initiatives And Corporate Governance Practices.

As a public company, and particularly after we are no longer an "emerging growth company," we will incur significant legal, accounting and other expenses that we did not incur as a private company. SOX, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of The NASDAQ Global

Market, and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. We expect that we will need to hire additional accounting, finance, and other personnel in connection with our becoming, and our efforts to comply with the requirements of being, a public company, and our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements. These requirements will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect that the rules and regulations applicable to us as a public company may make it more difficult and more expensive for us to obtain director and officer liability insurance, which could make it more difficult for us to attract and retain qualified members of our board of directors. Furthermore, in anticipation of becoming a public company, we will need to adopt additional internal controls and disclosure controls and procedures and bear all of the internal and external costs of preparing and distributing periodic public reports in compliance with our obligation under the securities laws. We are currently evaluating these rules and regulations and cannot predict or estimate the amount of additional costs we may incur or the timing of such costs. These rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

Pursuant to SOX Section 404, we will be required to furnish a report by our management on our internal control over financial reporting, including an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with SOX Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants, adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented, and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by SOX Section 404. If we identify one or more material weaknesses, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

The Market Price Of Our Common Shares May Be Volatile And Fluctuate Substantially, Which Could Result In Substantial Losses For Investors Purchasing Shares In This Offering.

The initial public offering price for our common shares will be determined through negotiations with the underwriters. This initial public offering price may vary from the market price of our common shares after the offering. As a result, you may not be able to sell your common shares at or above the initial public offering price. Some of the factors that may cause the market price of our common shares to fluctuate include:

- the success of existing or new competitive products or technologies;
- the timing and results of any product candidates that we may develop;
- commencement or termination of collaborations for our product development and research programs;
- failure or discontinuation of any of our product development and research programs;
- results of preclinical studies, clinical trials, or regulatory approvals of product candidates of our competitors, or announcements about new research programs or product candidates of our competitors;
- developments or changing views regarding the use of genomic products, including those that involve gene editing;

- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents, or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our research programs, clinical development programs, or product candidates that we may develop;
- the results of our efforts to discover, develop, acquire or in-license additional product candidates or products;
- actual or anticipated changes in estimates as to financial results, development timelines, or recommendations by securities analysts;
- announcement or expectation of additional financing efforts;
- sales of our common shares by us, our insiders, or other shareholders;
- expiration of market stand-off or lock-up agreement;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in estimates or recommendations by securities analysts, if any, that cover our common shares;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other factors described in this “Risk Factors” section.

In recent years, the stock market in general, and the market for pharmaceutical and biotechnology companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to changes in the operating performance of the companies whose stock is experiencing those price and volume fluctuations. Broad market and industry factors may seriously affect the market price of our common shares, regardless of our actual operating performance. These fluctuations may be even more pronounced in the trading market for our common shares shortly following this offering. Following periods of such volatility in the market price of a company’s securities, securities class action litigation has often been brought against that company. Because of the potential volatility of our common share price, we may become the target of securities litigation in the future. Securities litigation could result in substantial costs and divert management’s attention and resources from our business.

An Active Trading Market For Our Common Shares May Not Develop And You May Not Be Able To Resell Your Shares At Or Above The Initial Public Offering Price.

Prior to this offering, there has been no public market for shares of our common shares. Although we anticipate that our common shares will be approved for listing on NASDAQ, an active trading market for our shares may never develop or be sustained following this offering. The initial public offering price of our common shares will be determined through negotiations between us and the underwriters. This initial public offering price may not be indicative of the market price of our common shares after this offering. If a market for our common shares does not develop or is not sustained, it may be difficult for you to sell your common shares at an attractive price or at all. We cannot predict the prices at which our common shares will trade. It is possible that in one or more future periods our results of operations may be below the expectations of public market analysts and investors, and, as a result of these and other factors, the price of our common shares may fall.

If Securities Analysts Do Not Publish Research Or Reports About Our Business Or If They Publish Negative Evaluations Of Our Common Shares, The Price Of Our Common Shares Could Decline.

The trading market for our common shares will rely in part on the research and reports that industry or financial analysts publish about us or our business. We may never obtain research coverage by industry or financial analysts. If no or few analysts commence coverage of us, the trading price of our common shares would likely decrease. Even if we do obtain analyst coverage, if one or more of the analysts covering our business downgrade their evaluations of our common shares, the price of our common shares could decline. If one or more of these analysts cease to cover our common shares, we could lose visibility in the market for our common shares, which in turn could cause our common share price to decline.

Sales Of A Substantial Number Of Our Common Shares In The Public Market Could Cause Our Share Price To Fall.

If our existing shareholders sell, or indicate an intention to sell, substantial amounts of our common shares in the public market after the lock-up and other legal restrictions on resale discussed in this prospectus lapse, the market price of our common shares could decline. Based upon the number of common shares, on an as-converted basis, outstanding as of June 30, 2016, upon the completion of this offering and the concurrent private placement, we will have outstanding a total of 39,748,134 common shares, assuming no exercise of the underwriters' option to purchase an additional shares. Of these shares, as of the date of this prospectus, approximately 4,700,000 common shares, plus any shares sold upon exercise of the underwriters' option to purchase additional shares, will be freely tradable, without restriction, in the public market immediately following this offering, assuming that current shareholders do not purchase shares in this offering. The representatives of the underwriters, however, may, in their sole discretion, permit our officers, directors and other shareholders who are subject to these lock-up agreements to sell shares prior to the expiration of the lock-up agreements.

The lock-up agreements pertaining to this offering will expire 180 days from the date of this prospectus. After the lock-up agreements expire, based upon the number of common shares, on an as-converted basis, outstanding as of June 30, 2016, and after giving effect to the issuance of 328,017 shares pursuant to the Call Option and the issuance of an assumed 2,187,500 shares to Bayer in the concurrent private placement, up to an additional 34,424,030 common shares will be eligible for sale in the public market, approximately 53% of which shares are held by directors, executive officers and other affiliates and will be subject to certain limitations of Rule 144 under the Securities Act of 1933, as amended, or the Securities Act.

Upon completion of this offering and the concurrent private placement, 2,709,572 common shares that are either subject to outstanding options or reserved for future issuance under our equity incentive plans will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements and Rule 144 and Rule 701 under the Securities Act. If these additional common shares are sold, or if it is perceived that they will be sold, in the public market, the market price of our common shares could decline.

After this offering and the concurrent private placement, the holders of approximately 27,135,884 common shares will be entitled to rights with respect to the registration of their shares under the Securities Act, subject to the lock-up agreements described above. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares purchased by affiliates. Any sales of securities by these shareholders could have a material adverse effect on the market our common shares.

Participants In Our Directed Share Program Must Hold Their Shares For A Minimum Of 180 Days Following The Date Of This Prospectus And Accordingly Will Be Subject To Market Risks Not Imposed On Other Investors In The Offering.

At our request, the underwriters have reserved up to 5% of the common shares for sale at the initial public offering price to persons who are directors, officers or employees, or who are otherwise associated with us through a directed share program. Purchasers of these shares have agreed that, for a period of 180 days from the

date of this prospectus, they will not, subject to certain exceptions, dispose of or hedge any shares or any securities convertible into or exchangeable for our common shares with respect to shares purchased in the program. As a result of such restriction, such purchasers will face risks not faced by other investors who have the right to sell their shares at any time following the offering. These risks include the market risk of holding our common shares during the period that such restrictions are in effect. In addition, the price of our common shares may be adversely affected following expiration of the lock-up period if there is an increase in the number of shares for sale in the market.

We Are An "Emerging Growth Company," And The Reduced Disclosure Requirements Applicable To Emerging Growth Companies May Make Our Common Shares Less Attractive To Investors.

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. We will remain an emerging growth company until the earlier of (i) the last day of the fiscal year in which we have total annual gross revenue of $1 billion or more; (ii) the last day of the fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than $1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission, which means the market value of our common shares that is held by non-affiliates exceeds $700 million as of the prior June 30th. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include:

- not being required to comply with the auditor attestation requirements of Section 404 of SOX;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- being permitted to present only two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure in this prospectus;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved.

We may choose to take advantage of some, but not all, of the available exemptions. We have taken advantage of reduced reporting burdens in this prospectus. In particular, we have provided only two years of audited financial statements and have not included all of the executive compensation information that would be required if we were not an emerging growth company. We cannot predict whether investors will find our common shares less attractive if we rely on these exemptions. If some investors find our common shares less attractive as a result, there may be a less active trading market for our common shares and our common share price may be more volatile.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Our Executive Officers, Directors, Principal Shareholders And Their Affiliates Will Continue To Exercise Significant Influence Over Our Company After This Offering, Which Will Limit Your Ability To Influence Corporate Matters And Could Delay Or Prevent A Change In Corporate Control.

Certain principal shareholders and their affiliated entities as well as members of our executive team and board of directors owned approximately 84% of our common shares as of September 2, 2016, and we expect that upon completion of this offering and the concurrent private placement, will hold approximately 75% of our common shares. In addition, these shareholders may further increase their ownership in our Company pursuant to the directed share program. At our request, the underwriters have reserved 5% of the common shares for sale at the initial public offering price to persons who are directors, officers or employees, or individuals who are otherwise associated with us through a directed share program. Depending on the level of attendance at our general meetings of shareholders, these shareholders may be in a position to determine the outcome of decisions taken at any such general meeting. Any shareholder or group of shareholders controlling more than 50% of the shares represented at our general meetings of shareholders may control any shareholder resolution requiring an absolute majority of the shares represented, including the election of members to the board of directors of our Company, certain decisions relating to our capital structure, the approval of certain significant corporate transactions and certain amendments to our articles of association. To the extent that the interests of these shareholders may differ from the interests of our other shareholders, the latter may be disadvantaged by any action that these shareholders may seek to pursue. Among other consequences, this concentration of ownership may have the effect of delaying or preventing a change in control and might therefore negatively affect the market price of our common shares.

See “Principal Shareholders” in this prospectus for more information regarding the ownership of our outstanding common shares by our executive officers, directors, principal shareholders and their affiliates.

We Do Not Expect To Pay Dividends In The Foreseeable Future.

We have not paid any dividends since our incorporation. Even if future operations lead to significant levels of distributable profits, we currently intend that any earnings will be reinvested in our business and that dividends will not be paid until we have an established revenue stream to support continuing dividends. The proposal to pay future dividends to shareholders will in addition effectively be at the discretion of our board of directors and shareholders after taking into account various factors including our business prospects, cash requirements, financial performance and new product development. In addition, payment of future dividends is subject to certain limitations pursuant to Swiss law or by our articles of association. See “Description of Share Capital and Articles of Association.” Accordingly, investors cannot rely on dividend income from our common shares and any returns on an investment in our common shares will likely depend entirely upon any future appreciation in the price of our common shares. Dividends paid on our common shares are subject to Swiss federal withholding tax, except if paid out of reserves from capital contributions (“*Kapitaleinlagen*”). See “Taxation—Swiss Tax Considerations” for a summary of certain Swiss tax consequences regarding dividends distributed to holders of our common shares.

We Are A Swiss Corporation. The Rights Of Our Shareholders May Be Different From The Rights Of Shareholders In Companies Governed By The Laws Of U.S. Jurisdictions.

We are a Swiss corporation. Our corporate affairs are governed by our articles of association and by Swiss law. The rights of our shareholders and the responsibilities of members of our board of directors may be different from the rights and obligations of shareholders and directors of companies governed by the laws of U.S. jurisdictions. In the performance of its duties, our board of directors is required by Swiss law to consider the interests of our Company, our shareholders and our employees with due observation of the principles of reasonableness and fairness. It is possible that the board of directors will consider interests that are different from, or in addition to, your interests as a shareholder. Swiss corporate law limits the ability of our shareholders to challenge resolutions made or other actions taken by our board of directors in court. Our shareholders generally are not permitted to file a suit to reverse a decision or an action taken by our board of directors but are instead only permitted to seek damages for breaches of the duty of care and loyalty. As a matter of Swiss law, shareholder claims against a member of our

board of directors for breach of the duty of care and loyalty would have to be brought in Basel, Switzerland, or where the relevant member of our board of directors is domiciled. In addition, under Swiss law, any claims by our shareholders against us must be brought exclusively in Basel, Switzerland. See "Description of Share Capital and Articles of Association" and "Comparison of Swiss Law and Delaware Law."

We Will Need A Shareholders' Resolution Regarding The Authorized Share Capital Increase, Which If Obtained, Could Be Blocked.

Prior to this offering, we will need to obtain a shareholder resolution for the increase in authorized share capital increase. Even if we get this approval, as with all share capital increases in Switzerland, the registration of the capital increase in the commercial register of the Canton of Basel-Stadt may be blocked by a shareholder and the underlying shareholders' resolution may be challenged within two months after such shareholders' meeting and, therefore, prevent or delay the completion of this offering.

Our Common Shares Are Issued Under The Laws Of Switzerland, Which May Not Protect Investors In A Similar Fashion Afforded By Incorporation In A U.S. State.

We are organized under the laws of Switzerland. A further summary of applicable Swiss company law is contained in this prospectus under "Description of Share Capital and Articles of Association" and "Comparison of Swiss Law and Delaware Law." However, there can be no assurance that Swiss law will not change in the future or that it will serve to protect investors in a similar fashion afforded under corporate law principles in the U.S., which could adversely affect the rights of investors.

Our Status As A Swiss Corporation May Limit Our Flexibility With Respect To Certain Aspects Of Capital Management And May Cause Us To Be Unable To Make Distributions Without Subjecting Our Shareholders To Swiss Withholding Tax.

Swiss law allows our shareholders to authorize share capital that can be issued by the board of directors without additional shareholder approval. This authorization is limited to 50% of the existing registered share capital and must be renewed by the shareholders every two years. Additionally, subject to specified exceptions, Swiss law grants preemptive rights to existing shareholders to subscribe to any new issuance of shares. Swiss law also does not provide as much flexibility in the various terms that can attach to different classes of shares as the laws of some other jurisdictions. Swiss law also reserves for approval by shareholders certain corporate actions over which a board of directors would have authority in some other jurisdictions. For example, dividends must be approved by shareholders. These Swiss law requirements relating to our capital management may limit our flexibility, and situations may arise where greater flexibility would have provided substantial benefits to our shareholders.

Under Swiss law, a Swiss corporation may pay dividends only if the corporation has sufficient distributable profits from previous fiscal years, or if the corporation has distributable reserves, each as evidenced by its audited statutory balance sheet, and after allocations to reserves required by Swiss law and our articles of association have been deducted. Freely distributable reserves are generally booked either as "free reserves" or as "capital contributions" (*Kapitaleinlagen*, contributions received from shareholders) in the "reserve from capital contributions." Distributions may be made out of registered share capital—the aggregate par value of a company's registered shares—only by way of a capital reduction. We will not be able to pay dividends or make other distributions to shareholders on a Swiss withholding tax-free basis in excess of our aggregate qualifying contributions and registered share capital unless we increase our share capital or our reserves from capital contributions. We would also be able to pay dividends out of distributable profits or freely distributable reserves, but such dividends would be subject to Swiss withholding taxes. There can be no assurance that we will have sufficient distributable profits, free reserves, reserves from capital contributions or registered share capital to pay a dividend or effect a capital reduction, that our shareholders will approve dividends or capital reductions proposed by us or that we will be able to meet the other legal requirements for dividend payments or distributions as a result of capital reductions.

Generally, Swiss withholding tax of 35% is due on dividends and similar distributions to our shareholders, regardless of the place of residency of the shareholder, unless the distribution is made to shareholders out of (i) a reduction of registered share capital or (ii) assuming certain conditions are met, qualifying capital contribution reserves, as further described under "Taxation—Swiss Tax Considerations—Swiss Federal Withholding Tax". A U.S. holder that qualifies for benefits under the Convention between the United States of America and Switzerland for the Avoidance of Double Taxation with Respect to Taxes on Income, or the U.S.-Swiss Treaty, may apply for a refund of the tax withheld in excess of the 15% treaty rate (or in excess of the 5% reduced treaty rate for qualifying corporate shareholders with at least 10% participation in our voting shares, or for a full refund in the case of qualified pension funds). There can be no assurance that we will have sufficient qualifying capital contribution reserves to pay dividends free from Swiss withholding tax, or that Swiss withholding rules will not be changed in the future. In addition, we cannot provide assurance that the current Swiss law with respect to distributions out of qualifying capital contribution reserves will not be changed or that a change in Swiss law will not adversely affect us or our shareholders, in particular as a result of distributions out of qualifying capital contribution reserves becoming subject to additional corporate law or other restrictions. There are currently motions pending in the Swiss Parliament that may limit the distribution of qualifying capital contributions. In addition, over the long term, the amount of registered share capital available to us for registered share capital reductions or qualifying capital contributions available to us to pay out as distributions is limited. If we are unable to make a distribution through a reduction in par value or out of qualifying capital contributions, we may not be able to make distributions without subjecting our shareholders to Swiss withholding taxes.

Under present Swiss tax laws, repurchases of shares for the purposes of cancellation are treated as a partial liquidation subject to 35% Swiss withholding tax on the difference between the repurchase price and the par value except, since January 1, 2011, to the extent attributable to qualifying capital contributions (*Kapitaleinlagen*) if any, and to the extent that, the repurchase of shares is out of retained earnings or other taxable reserves, the Swiss withholding becomes due. No partial liquidation treatment applies and no withholding tax is triggered if the shares are not repurchased for cancellation but held by the Company as treasury shares. However, should the Company not resell such treasury shares within six years, the withholding tax becomes due at the end of the six year period.

You May Be Subject To Adverse U.S. Federal Income Tax Consequences If We Are Classified As A Controlled Foreign Corporation.

Each "Ten Percent Shareholder" (as defined below) in a non-U.S. corporation that is classified as a "controlled foreign corporation," or a CFC, for United States federal income tax purposes generally is required to include in income for U.S. federal tax purposes such Ten Percent Shareholder's pro rata share of the CFC's "Subpart F income" and investment of earnings in U.S. property, even if the CFC has made no distributions to its shareholders. Subpart F income generally includes dividends, interest, rents and royalties, gains from the sale of securities and income from certain transactions with related parties. In addition, a Ten Percent Shareholder that realizes gain from the sale or exchange of shares in a CFC may be required to classify a portion of such gain as dividend income rather than capital gain. A non-U.S. corporation generally will be classified as a CFC for United States federal income tax purposes if Ten Percent Shareholders own, directly or indirectly, more than 50% of either the total combined voting power of all classes of stock of such corporation entitled to vote or of the total value of the stock of such corporation. A "Ten Percent Shareholder" is a United States person (as defined by the U.S. Internal Revenue Code of 1986, as amended (the "Code")) who owns or is considered to own 10% or more of the total combined voting power of all classes of stock entitled to vote of such corporation. The determination of CFC status is complex and includes attribution rules, the application of which is not entirely certain.

We believe that we were a CFC for the taxable year ended December 31, 2015; however, our CFC status for the current taxable year is uncertain and we may be a CFC for the current taxable year or a following year. It is possible that, following this offering, a shareholder treated as a U.S. person for U.S. federal income tax purposes will acquire, directly or indirectly, enough shares to be treated as a Ten Percent Shareholder. We also believe that immediately following this offering we may have certain shareholders that will be Ten Percent Shareholders for

United States federal income tax purposes. U.S. holders should consult their own tax advisors with respect to the potential adverse U.S. tax consequences of becoming a Ten Percent Shareholder in a CFC. If we are classified as both a CFC and a PFIC, we generally will not be treated as a PFIC with respect to those U.S. holders that meet the definition of a Ten Percent Shareholder during the period in which we are a CFC.

Our U.S. Shareholders May Suffer Adverse Tax Consequences If We Are Characterized As A Passive Foreign Investment Company.

Generally, if, for any taxable year, at least 75% of our gross income is passive income, or at least 50% of the value of our assets is attributable to assets that produce passive income or are held for the production of passive income, including cash, we would be characterized as a passive foreign investment company, or PFIC, for U.S. federal income tax purposes. For purposes of these tests, passive income includes dividends, interest, and gains from the sale or exchange of investment property and rents and royalties other than rents and royalties which are received from unrelated parties in connection with the active conduct of a trade or business. If we are characterized as a PFIC, U.S. holders of our common shares may suffer adverse tax consequences, including having gains realized on the sale of the common shares treated as ordinary income, rather than capital gain, the loss of the preferential rate applicable to dividends received on the common shares by individuals who are U.S. holders, and having interest charges apply to distributions by us and the proceeds of sales of the common shares. See “Material U.S. Federal Income Tax Considerations to U.S. Holders—Passive Foreign Investment Company Considerations.”

Our status as a PFIC will depend on the composition of our income and the composition and value of our assets (which, assuming we were a non-publicly traded CFC for the year being tested for purposes of the PFIC rules, must be measured by the adjusted tax basis of our assets or, if we were a publicly traded CFC or not a CFC for such year, the total value of our assets may be determined in part by reference to the quarterly market value of our common shares, which may be volatile) from time to time. Our status may also depend, in part, on how, and how quickly, we utilize the cash proceeds from this offering in our business. Based on our belief that we were a CFC for the 2015 taxable year (and thus are required to determine our PFIC status for 2015 under the asset test by reference to the adjusted tax basis of our assets), we believe we were a PFIC for the 2015 taxable year and we may be a PFIC with respect to the 2016 taxable year. However, our status as a PFIC is a fact-intensive determination made on an annual basis and we cannot provide any assurances regarding our PFIC status for any past, current or future taxable years.

We intend to determine our PFIC status at the end of each taxable year and to satisfy any applicable recordkeeping and reporting requirements that apply to a qualified electing fund, or QEF, and will endeavor to provide to you, for each taxable year that we determine we are a PFIC, the information that is necessary for you to make a QEF election with respect to us (and any of our subsidiaries which are lower-tier PFICs). We may elect to provide such information on our website. However, there can be no assurances that we will make the necessary information available to you with respect to any lower-tier PFICs (as discussed below under “Material U.S. Federal Income Tax Considerations to U.S. Holders—Passive Foreign Investment Company Considerations”). You are urged to consult your own tax advisors regarding the availability, and advisability, of, and procedure for making, a QEF election, including, with respect to any lower-tier PFICs.

U.S. Shareholders May Not Be Able To Obtain Judgments Or Enforce Civil Liabilities Against Us Or Our Executive Officers Or Members Of Our Board Of Directors.

We are organized under the laws of Switzerland and our registered office and domicile is located in Basel, Switzerland. Moreover, certain of our directors and executive officers and a number of directors of each of our subsidiaries are not residents of the United States, and all or a substantial portion of the assets of such persons are located outside the United States. As a result, it may not be possible for investors to effect service of process within the United States upon us or upon such persons or to enforce against them judgments obtained in U.S. courts, including judgments in actions predicated upon the civil liability provisions of the federal securities laws

of the United States. We have been advised by our Swiss counsel that there is doubt as to the enforceability in Switzerland of original actions, or in actions for enforcement of judgments of U.S. courts, of civil liabilities to the extent solely predicated upon the federal and state securities laws of the United States. Original actions against persons in Switzerland based solely upon the U.S. federal or state securities laws are governed, among other things, by the principles set forth in the Swiss Federal Act on Private International Law. This statute provides that the application of provisions of non-Swiss law by the courts in Switzerland shall be precluded if the result is incompatible with Swiss public policy. Also, mandatory provisions of Swiss law may be applicable regardless of any other law that would otherwise apply.

Switzerland and the United States do not have a treaty providing for reciprocal recognition and enforcement of judgments in civil and commercial matters. The recognition and enforcement of a judgment of the courts of the United States in Switzerland is governed by the principles set forth in the Swiss Federal Act on Private International Law. This statute provides in principle that a judgment rendered by a non-Swiss court may be enforced in Switzerland only if:

- the non-Swiss court had jurisdiction pursuant to the Swiss Federal Act on Private International Law;
- the judgment of such non-Swiss court has become final and non-appealable;
- the judgment does not contravene Swiss public policy;
- the court procedures and the service of documents leading to the judgment were in accordance with the due process of law; and
- no proceeding involving the same position and the same subject matter was first brought in Switzerland, or adjudicated in Switzerland, or was earlier adjudicated in a third state and this decision is recognizable in Switzerland.

Our Status As A Swiss Corporation Means That Our Shareholders Enjoy Certain Rights That May Limit Our Flexibility To Raise Capital, Issue Dividends And Otherwise Manage Ongoing Capital Needs.

Swiss law reserves for approval by shareholders certain corporate actions over which a board of directors would have authority in some other jurisdictions. For example, the payment of dividends and cancellation of treasury shares must be approved by shareholders. Swiss law also requires that our shareholders themselves resolve to, or authorize our board of directors to, increase our share capital. While our shareholders may authorize share capital that can be issued by our board of directors without additional shareholder approval, Swiss law limits this authorization to 50% of the issued share capital at the time of the authorization. The authorization, furthermore, has a limited duration of up to two years and must be renewed by the shareholders from time to time thereafter in order to be available for raising capital. Additionally, subject to specified exceptions, including exceptions explicitly described in our articles of association, Swiss law grants pre-emptive rights to existing shareholders to subscribe for new issuances of shares. Swiss law also does not provide as much flexibility in the various rights and regulations that can attach to different categories of shares as do the laws of some other jurisdictions, such as in the United States. These Swiss law requirements relating to our capital management may limit our flexibility, and situations may arise where greater flexibility would have provided benefits to our shareholders. See “Description of Share Capital and Articles of Association” and “Comparison of Swiss Law and Delaware Law.”

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains statements that constitute forward-looking statements. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, business strategy, product candidates, product pipeline, and planned preclinical and clinical studies, regulatory approvals, research and development costs, timing and likelihood of success, as well as plans and objectives of management for future operations are forward-looking statements. Many of the forward-looking statements contained in this prospectus can be identified by the use of forward-looking words such as “anticipate,” “believe,” “could,” “expect,” “should,” “plan,” “intend,” “estimate,” “will” and “potential,” among others.

Forward-looking statements appear in a number of places in this prospectus and include, but are not limited to, statements regarding our plans, intent, belief or current expectations. Forward-looking statements are based on our management’s beliefs and assumptions and on information currently available to our management. Such statements are subject to risks and uncertainties, and actual results may differ materially from those expressed or implied in the forward-looking statements due to various factors, including, but not limited to, those identified under the section entitled “Risk Factors” in this prospectus. These risks and uncertainties include factors relating to:

- the initiation, cost, timing, progress and results of our research and development activities, preclinical studies and future clinical trials;
- our ability to create a pipeline of product candidates;
- our ability to advance any product candidate into, and successfully complete clinical trials;
- our ability to obtain and maintain regulatory approval of our future product candidates, and any related restrictions, limitations and/or warnings in the label of an approved product candidate;
- our ability to obtain funding for our operations;
- our plans to research, develop and commercialize our future product candidates;
- the success of our joint venture with Bayer HealthCare LLC and our collaboration with Vertex Pharmaceuticals, Incorporated;
- our ability to obtain and maintain intellectual property protection for our future product candidates;
- the size and growth potential of the markets for our future product candidates, and our ability to serve those markets;
- our ability to successfully commercialize our current and future product candidates;
- the rate and degree of market acceptance of our current and future product candidates;
- regulatory developments in the United States and foreign countries;
- developments relating to gene-editing technologies including CRISPR/Cas9;
- the success of competing therapies that are or become available;
- our ability to retain key scientific or management personnel;
- our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately;
- our use of the proceeds from this offering and the concurrent private placement; and
- the accuracy of our estimates regarding expenses, future revenues, capital requirements and need for additional financing.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this prospectus.

You should not rely upon forward-looking statements as predictions of future events. We have based the forward-looking statements contained in this prospectus primarily on our current expectations and projections about future events and trends that we believe may affect our business, financial condition, results of operations and prospects. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of risks, uncertainties and assumptions described under the sections in this prospectus entitled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and elsewhere in this prospectus. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risks and uncertainties may emerge from time to time, and it is impossible for management to predict all risks and uncertainties. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. The forward-looking statements contained in this prospectus are excluded from the safe harbor protection provided by the Private Securities Litigation Reform Act of 1995 and Section 27A of the Securities Act.

MARKET AND INDUSTRY DATA

This prospectus contains industry, market and competitive position data that are based on industry publications and studies conducted by third parties as well as our own internal estimates and research. These industry publications and third-party studies generally state that the information that they contain has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We are responsible for all of the disclosure contained in this prospectus, and we believe these industry publications and third-party research, surveys and studies are reliable.

USE OF PROCEEDS

We estimate that the net proceeds from the sale of common shares in this offering, excluding the concurrent private placement, will be approximately $66.2 million at an assumed initial public offering price of $16.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters exercise their over-allotment option in full, we estimate that the net proceeds will be approximately $76.7 million, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

Each $1.00 increase (decrease) in the assumed initial public offering price of $16.00 per share would increase (decrease) our net proceeds by $4.4 million, assuming the number of shares offered by us, as set forth on the cover of this prospectus, remains the same and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. An increase (decrease) of 1,000,000 in the number of shares we are offering would increase (decrease) the net proceeds to us from this offering, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, by approximately $14.9 million, assuming the assumed initial public offering price stays the same.

Bayer Global Investments B.V. has agreed to purchase from us concurrently with this offering in a private placement $35 million of our common shares at a price per share equal to the initial public offering price. See “Concurrent Private Placement.”

We are undertaking this offering in order to access the public capital markets, to increase our liquidity and to support continued development of our research programs. We intend to use the net proceeds of this offering and the concurrent private placement, together with our existing cash and cash equivalents, as follows:

- approximately $20.0 million to advance the development of our hemoglobinopathy programs;
- approximately $40.0 million to progress additional pipeline candidates;
- approximately $10.0 million to further optimize our CRISPR/Cas9 gene editing platform and develop delivery technologies; and
- the remainder, if any, for manufacturing, working capital and general corporate purposes.

However, due to the uncertainties inherent in the product development process, it is difficult to estimate with certainty the exact amounts of the net proceeds from this offering and the concurrent private placement that may be used for the above purposes. The amount and timing of our actual expenditures will depend upon numerous factors, including the results of our research and development efforts, the timing and success of our ongoing preclinical studies or preclinical studies we may commence in the future and the timing of regulatory submissions. As a result, our management will have broad discretion over the use of the net proceeds from this offering and the concurrent private placement, and investors will be relying on our judgment regarding the application of the net proceeds. In addition, we might decide to postpone or not pursue certain preclinical activities if the net proceeds from this offering and the concurrent private placement and our other sources of cash are less than expected.

Although it is difficult to predict future liquidity requirements, we believe that the net proceeds from this offering and the concurrent private placement, along with our existing cash and cash equivalents, together with interest thereon, will be sufficient to fund our operations for at least the next 24 months.

We believe opportunities may exist from time to time to expand our current business through acquisitions or in-licenses of complementary companies or technologies. While we have no current agreements, commitments or understandings for any specific acquisitions or in-licenses at this time, we may use a portion of the net proceeds for these purposes.

Pending the use of the proceeds from this offering and the concurrent private placement, we intend to invest the net proceeds in interest-bearing, investment-grade securities, certificates of deposit or direct or guaranteed obligations of the U.S. and Swiss governments.

DIVIDEND POLICY

We have never declared or paid cash dividends on our capital stock. We intend to retain all available funds and any future earnings, if any, to fund the development and expansion of our business and we do not anticipate paying any cash dividends in the foreseeable future. Any future determination related to dividend policy will be made at the discretion of our board of directors.

Under Swiss law, any dividend must be proposed by our board of directors and approved by our shareholders. In addition, our auditors must confirm that the dividend proposal of our board of directors conforms to Swiss statutory law and our articles of association. A Swiss corporation may pay dividends only if it has sufficient distributable profits brought forward from the previous business years ("*Gewinnvortrag*") or if it has distributable reserves ("*freie Reserven*"), each as evidenced by its audited standalone statutory balance sheet prepared pursuant to Swiss law and after allocations to reserves required by Swiss law and its articles of association have been deducted. Distributable reserves are generally booked either as "free reserves" ("*freie Reserven*") or as "reserve from capital contributions" *("Kapitaleinlagereserven").* Distributions out of issued share capital, which is the aggregate nominal value of a corporation's issued shares, may be made only by way of a share capital reduction. See "Description of Share Capital and Articles of Association."

CAPITALIZATION

The following table sets forth our cash and total capitalization as of June 30, 2016 on:

- an actual basis;
- a pro forma basis to give effect to:
  - (i) the conversion of all 27,135,884 of our outstanding preferred shares into common shares on a one-for-one basis immediately prior to the closing of this offering;
  - (ii) the issuance of 328,017 common shares to Dr. Emmanuelle Charpentier immediately prior to the closing of this offering pursuant to the Call Option Agreement;
  - (iii) the filing and effectiveness of our amended and restated articles of association and creation of authorized and conditional share capital of 31,724,612 common shares upon closing of this offering; and
- a pro forma as adjusted basis to further reflect:
  - (i) the receipt of the estimated net proceeds from the sale of 4,700,000 common shares in this offering at an assumed initial public offering price of $16.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us; and
  - (ii) the issuance and sale by us in the concurrent private placement of 2,187,500 common shares to Bayer Global Investments B.V., assuming an initial public offering price of $16.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus.

Actual data as of June 30, 2016 in the table below is derived from our unaudited consolidated financial statements. The pro forma data included in the table below is also unaudited. The pro forma as adjusted information below is illustrative only, and our capitalization following the completion of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. You should read this table in conjunction with "Use of Proceeds," "Selected Consolidated Financial and Other Information" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our audited consolidated financial statements and related notes included elsewhere in this prospectus.

	As of June 30, 2016		
	Actual	Pro Forma	Pro Forma As Adjusted[1]
	(in thousands, except share and per share data)		
Cash	246,849	246,849	348,644
Redeemable convertible preferred shares (Series A-1, Series A-2, Series A-3, Series B), CHF 0.03 par value; 27,135,884 shares authorized, issued, and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	185,565	—	—
Stockholders' (deficit) equity:			
Common shares, CHF 0.03 par value; 5,387,986 shares authorized and issued, and 5,262,686 shares outstanding, actual; 32,851,887 shares authorized and issued, and 32,726,587 shares outstanding, pro forma; 70,977,463 shares authorized, 39,748,134 shares issued and outstanding, pro forma as adjusted	173	997	1,204
Treasury shares, at cost, no shares at December 31, 2014 and 2015, and 274,140 shares at June 30, 2016 (unaudited) and pro forma (unaudited)	—	—	—
Additional paid-in capital	9,167	194,085	295,064
Accumulated deficit	(59,502)	(59,716)	(59,716)
Total shareholders' (deficit) equity	(50,224)	135,341	236,527
Total capitalization	135,341	135,341	236,527

(1) A $1.00 increase (decrease) in the assumed initial public offering price of $16.00 per share would increase (decrease) each of pro forma as adjusted cash and cash equivalents, additional paid-in capital, total capitalization and total shareholders' equity by $4.4 million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1,000,000 in the number of shares offered by us would increase (decrease) pro forma as adjusted cash and cash equivalents, additional paid-in capital, total shareholders' equity and capitalization by $14.9 million, assuming an initial public offering price of $16.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The number of common shares in the table above excludes:

- 2,709,572 of our common shares issuable upon the exercise of options outstanding under our 2015 Stock Option Plan as of June 30, 2016 at a weighted-average exercise price of $4.14 per common share;
- 7,271,779 of our common shares reserved for future issuance under our 2016 Stock Option Plan, which will become effective immediately prior to the completion of this offering; and
- 413,226 common shares reserved for issuance under our 2016 Employee Stock Purchase Plan, or ESPP, which will become effective immediately prior to the completion of this offering.

DILUTION

If you invest in our common shares, your interest will be diluted to the extent of the difference between the initial public offering price per share and the pro forma as adjusted net tangible book value per share of our common shares immediately after this offering.

Net tangible book value is determined by dividing our total tangible assets less our total liabilities by the number of our common shares outstanding. Our historical net tangible book value as of June 30, 2016 was $132.8 million, or $24.61, per common share. Our pro forma net tangible book value as of June 30, 2016, before giving effect to this offering and the concurrent private placement, was $132.8 million, or $4.04 per common share, based on the total number of our common shares outstanding as of June 30, 2016, after giving effect to (i) the conversion of all 27,135,884 of our preferred shares outstanding as of June 30, 2016 into common shares on a one-for-one basis immediately prior to the closing of this offering and (ii) the issuance of 328,017 common shares to Dr. Emmanuelle Charpentier immediately prior to the closing of this offering pursuant to the Call Option Agreement.

Dilution per share to new investors represents the difference between the amount per share paid by purchasers of common shares in this offering and the pro forma as adjusted net tangible book value per common share immediately after completion of this offering and the concurrent private placement. After giving effect to our sale of 4,700,000 common shares in this offering and 2,187,500 common shares in the concurrent private placement, both at an assumed initial public offering price of $16.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2016 would have been $236.1 million, or $5.94 per share. This represents an immediate increase in as adjusted net tangible book value of $1.90 per share to existing shareholders and an immediate dilution of $10.06 per share to investors participating in this offering, as illustrated in the following table:

Assumed initial public offering price per share		$ 16.00
Historical net tangible book value per share at June 30, 2016	$ 24.61	
Decrease per share attributable to pro forma adjustments	(20.57)	
Pro forma net tangible book value per share at June 30, 2016	4.04	
Increase in pro forma net tangible book value attributable to this offering and the concurrent private placement	1.90	
Pro forma as adjusted net tangible book value per share after this offering and the concurrent private placement		5.94
Dilution per share to investors participating in this offering		$ 10.06

Each $1.00 increase (decrease) in the assumed initial public offering price of $16.00 per share would increase (decrease) our pro forma as adjusted net tangible book value by approximately $4.4 million, or approximately $0.11 per share, and the dilution per share to investors in this offering by approximately $0.89 per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. An increase of 1,000,000 shares in the number of shares offered by us would increase our pro forma as adjusted net tangible book value by approximately $14.9 million, or approximately $0.22 per share, and decrease the pro forma dilution per share to investors in this offering by approximately $0.22 per share, assuming an initial public offering price of $16.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. A decrease of 1,000,000 shares in the number of shares offered by us would decrease our pro forma as adjusted net tangible book value by approximately $14.9 million, or approximately $0.23 per share, and increase the pro forma dilution per share to investors in this offering by approximately $0.23 per share, assuming an initial public offering price of $16.00 per share, after deducting the underwriting discounts and commissions and

estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing.

If the underwriters' over-allotment option is exercised in full, the pro forma as adjusted net tangible book value per share after this offering would be $6.10 per share, the increase in pro forma as adjusted net tangible book value per share to existing shareholders would be $0.16 per share and the decrease in the dilution to new investors purchasing shares in this offering would be $0.16 per share.

The following table shows, at June 30, 2016, on a pro forma as adjusted basis, after giving effect to the pro forma adjustments described above, the number of common shares purchased from us, the total consideration paid to us and the average price paid per share by existing shareholders and by new investors purchasing common shares in this offering and the concurrent private placement at an assumed initial public offering price of $16.00 per share, before deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

	Total Shares		Total Consideration		Average Price per Share
	Number	Percent	Amount	Percent	
Existing shareholders before this offering	32,860,634	82.7%	$ 198,845,461	64.4%	$ 6.05
Concurrent private placement investor	2,187,500	5.5%	35,000,000	11.3%	16.00
Investors participating in this offering	4,700,000	11.8%	75,200,000	24.3%	16.00
Total	39,748,134	100.0%	$ 309,045,461	100.0%	$ 7.78

Each $1.00 increase (decrease) in the assumed initial public offering price of $16.00 per share, would increase (decrease) the total consideration paid to us by new investors and total consideration paid to us by all shareholders by $4.4 million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of 1,000,000 shares in the number of shares offered by us would increase (decrease) the total consideration paid to us by new investors and total consideration paid to us by all shareholders by approximately $14.9 million, assuming an initial public offering price of $16.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The calculations above are based on (i) 32,532,617 shares outstanding as of June 30, 2016, including 134,047 issued but unvested restricted shares, and (ii) after giving effect to the pro forma transactions, but exclude:

- 2,709,572 of our common shares issuable upon the exercise of options outstanding under our 2015 Stock Option Plan as of June 30, 2016 at a weighted-average exercise price of $4.14 per common share;
- 7,271,779 of our common shares reserved for future issuance under our 2016 Stock Option Plan, which will become effective immediately prior to the completion of this offering; and
- 413,226 common shares reserved for issuance under our 2016 Employee Stock Purchase Plan, or ESPP, which will become effective immediately prior to the completion of this offering.

To the extent that any outstanding options are exercised, new options are issued under our share-based compensation plans or we issue additional common shares in the future, there will be further dilution to investors participating in this offering.

EXCHANGE RATES

The following table sets forth, for the periods indicated, the high, low, average and period-end exchange rates for the purchase of U.S. dollars expressed in CHF per U.S. dollar. The average rate is calculated by using the average of the U.S. Federal Reserve Bank's reported exchange rates on each day during a monthly period and on the last day of each month during an annual period. On September 23, 2016, the exchange rate as reported by the U.S. Federal Reserve Bank was CHF 0.9702 to USD $1.00. In this prospectus, translations from CHF to U.S. dollars were made at the rate of 1.0017 to USD $1.00, the official exchange rate quoted as of December 31, 2015 by the U.S. Federal Reserve Bank.

	Period-end	Average for Period	Low	High
	(CHF per U.S. dollar)			
Years Ended December 31:				
2011	0.9374	0.8802	0.7296	0.9755
2012	0.9155	0.9331	0.8949	0.9957
2013	0.8904	0.9241	0.8856	0.9814
2014	0.9934	0.9195	0.8712	0.9934
2015	1.0017	0.9654	0.8488	1.0305
Months Ended:				
January 31, 2016	1.0226	1.0082	0.9972	1.0226
February 29, 2016	0.9960	0.9920	0.9706	1.0202
March 31, 2016	0.9583	0.9811	0.9583	0.9994
April 30, 2016	0.9598	0.9634	0.9537	0.9774
May 31, 2016	0.9697	0.9611	0.9541	0.9697
June 30, 2016	0.9792	0.9695	0.9566	0.9902
July 31, 2016	0.9690	0.9830	0.9690	0.9936
August 31, 2016	0.9830	0.9713	0.9576	0.9838
September 30, 2016	0.9702	0.9745	0.9655	0.9798

SELECTED CONSOLIDATED FINANCIAL DATA

The following tables summarize our consolidated financial data as of the dates and for the periods indicated. The consolidated statements of operations data for the years ended December 31, 2014 and 2015 and the consolidated balance sheet data as of December 31, 2015 are derived from our audited consolidated financial statements included elsewhere in this prospectus. The consolidated statements of operations data for the six months ended June 30, 2015 and 2016 and the consolidated balance sheet data as of June 30, 2016 have been derived from our unaudited interim financial statements included elsewhere in this prospectus and have been prepared on the same basis as the audited financial statements. In the opinion of management, the unaudited data reflects all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information in those statements.

Our historical results are not necessarily indicative of the results that may be expected in the future. Our interim consolidated financial results for the periods presented are not necessarily indicative of results for a full year or for any subsequent interim period. The following selected financial data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements included elsewhere in this prospectus.

	Year Ended December 31,		Six Months Ended June 30,	
	2014	2015	2015	2016
	(in thousands, except share and per share amounts)		(in thousands, except share and per share amounts)	
Statement of Operations Data:				
Collaboration revenue	$ —	$ 247	$ —	$ 1,271
Operating expenses:				
Research and development	1,513	12,573	2,650	14,614
General and administrative	5,114	13,403	4,711	14,867
Total operating expenses	6,627	25,976	7,361	29,481
Operating loss	(6,627)	(25,729)	(7,361)	(28,210)
Other (expense) income, net	(236)	(92)	(43)	2,680
Benefit from (provision for) income taxes	63	(7)	216	(76)
Net loss	(6,800)	(25,828)	(7,188)	(25,606)
Foreign currency translation adjustment	(2)	(6)	2	(17)
Comprehensive loss	$ (6,802)	$ (25,834)	$ (7,186)	$ (25,623)
Reconciliation of net loss to net loss attributable to common shareholders:				
Net loss	$ (6,800)	$ (25,828)	(7,188)	(25,606)
Loss attributable to noncontrolling interest	536	325	308	10
Loss on extinguishment of redeemable convertible preferred shares	(745)	—	—	—
Net loss attributable to common shareholders	$ (7,009)	$ (25,503)	$ (6,880)	$ (25,596)
Net loss per share attributable to common shareholders, basic and diluted	$ (1.97)	$ (5.06)	$ (1.52)	$ (4.66)
Weighted-average common shares outstanding, basic and diluted(1)	3,559,985	5,037,404	4,538,595	5,488,467
Pro-forma net loss per share, basic and diluted (unaudited)		$ (1.26)		$ (0.87)
Pro-forma weighted-average common shares outstanding, basic and diluted (unaudited)		20,241,365		29,297,808

(1) See Note 2 in the notes to our annual and interim consolidated financial statements appearing at the end of this prospectus for a description of the method used to calculate basic and diluted net loss per share and pro forma basic and diluted net loss per share.

	As of December 31, 2015 Actual (in thousands)	As of June 30, 2016 Actual (in thousands)
Balance Sheet Data:		
Cash	$ 155,961	$ 246,849
Working capital	146,685	168,560
Total assets	159,423	293,059
Redeemable convertible preferred shares	64,521	185,565
Total shareholders' deficit	(29,124)	(50,224)

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read together with our consolidated financial statements and related notes and other financial information appearing elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this prospectus, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a leading gene editing company focused on the development of CRISPR/Cas9-based therapeutics. CRISPR/Cas9 is a revolutionary gene editing technology that allows for precise, directed changes to genomic DNA. The application of CRISPR/Cas9 for gene editing was co-invented by one of our scientific founders, Dr. Emmanuelle Charpentier, who, along with her collaborators, published work elucidating how CRISPR/Cas9, a naturally occurring viral defense mechanism found in bacteria, can be adapted for use in gene editing. We are applying this technology to potentially treat a broad set of rare and common diseases by disrupting, correcting or regulating the genes related to the disease. We believe that our scientific expertise, together with our approach, may enable an entirely new class of highly active and potentially curative treatments for patients for whom current biopharmaceutical approaches have had limited success.

We are pursuing a two-pronged strategy using both *ex vivo* and *in vivo* approaches in our product development programs. Our most advanced programs in hemoglobinopathies use an *ex vivo* approach, whereby cells are harvested from a patient, treated with a CRISPR/Cas9-based therapeutic and reintroduced into the patient. Beyond these lead programs, we are pursuing a number of additional *ex vivo* applications, as well as select *in vivo* applications whereby the CRISPR/Cas9 therapeutic is delivered directly to target cells within the human body. Our initial *in vivo* applications will leverage well-established delivery technologies for gene based therapeutics.

Since our inception in October 2013, we have devoted substantially all of our resources to initiating the conduct of our research and development efforts, identifying potential product candidates, undertaking drug discovery and preclinical development activities, building and protecting our intellectual property portfolio, organizing and staffing our company, business planning, raising capital, and providing general and administrative support for these operations. To date, we have primarily financed our operations through private placements of our preferred shares, convertible loans and collaboration agreements with strategic partners. From our inception through June 30, 2016, we raised an aggregate of $293.4 million, of which $125.2 million consisted of gross proceeds from private placements of our preferred shares, $73.2 million from the issuance of convertible loans, $75.0 million from an upfront payment under our collaboration with Vertex Pharmaceuticals, Incorporated, or Vertex, and $20.0 million from a technology access fee related to our license of technology to our joint venture with Bayer HealthCare LLC, or Bayer HealthCare.

All of our revenue to date has been collaboration revenue. We have incurred significant net operating losses in every year since our inception and expect to continue to incur net operating losses for the foreseeable future. As of June 30, 2016, we had $246.8 million in cash and an accumulated deficit of $59.5 million. We expect to continue to incur significant expenses and increasing operating losses for the next several years. Our net losses may fluctuate significantly from quarter to quarter and year to year. We anticipate that our expenses will increase significantly as we continue our current research programs and development activities; seek to identify additional research programs and additional product candidates; initiate preclinical testing and clinical trials for any product

candidates we identify and develop, maintain, expand and protect our intellectual property portfolio, including in the ongoing interference proceeding with respect to certain of our in-licensed intellectual property; further develop our gene editing platform; hire additional research, clinical and scientific personnel; and incur additional costs associated with operating as a public company.

Collaboration Agreement and Joint Venture Agreement

In October 2015, we entered into a strategic research collaboration agreement with Vertex focused on the development of CRISPR/Cas9-based therapies. Under the terms of our agreement, we received an upfront, nonrefundable payment of $75.0 million and $30.0 million in convertible loan proceeds.

In December 2015, we entered into an agreement, the JV Agreement, with Bayer HealthCare to create a joint venture, Casebia Therapeutics LLP, the JV, to discover, develop and commercialize new breakthrough therapeutics to cure blood disorders, blindness and heart disease. We and Bayer HealthCare each have a 50% interest in the JV. Under the JV Agreement, Bayer HealthCare will make available its protein engineering expertise and relevant disease know-how and we will contribute our proprietary CRISPR/Cas9 gene editing technology and intellectual property. Bayer HealthCare will also provide up to $300.0 million in research and development investments to the JV over the first five years, subject to specified conditions.

In connection with the JV Agreement, the JV is required to pay us an aggregate amount of $35 million technology access fee, consisting of an upfront payment of $20 million, which was paid at the closing of the JV Agreement in March 2016, and another payment of $15 million when we obtain specified intellectual property rights relating to our CRISPR/Cas9 technology outside of the United States. In January 2016, we also issued a convertible loan to Bayer Global Investments B.V., or Bayer BV, for gross proceeds of $35.0 million which was immediately converted to Series B Preferred Shares at a conversion price of $13.43 per share. In connection with the JV Agreement, Bayer BV also agreed to purchase $35.0 million of our common shares in a private placement upon the successful completion of an initial public offering of our common shares at the price paid by other investors in the initial public offering.

The JV is led by Dr. Axel Bouchon, Head of the Bayer Life Science Center, on an interim basis as general manager, while Dr. Rodger Novak, our Chief Executive Officer, is the interim chairman of the management board of the JV.

Financial Overview

Revenue

To date, we have not generated any revenue from product sales and do not expect to do so in the near future. During the year ended December 31, 2015 and six months ended June 30, 2016, we recognized $0.2 million and $1.3 million, respectively, of revenue related to our collaboration agreement with Vertex. As of June 30, 2016, we had not received any milestone or royalty payments under the Vertex collaboration agreement. For additional information about our revenue recognition policy, see the “Critical Accounting Policies and Estimates—Revenue.”

For the foreseeable future, we expect substantially all of our revenue to be generated from our collaboration with Vertex, our joint venture with Bayer HealthCare and any other collaboration agreements we may enter into.

Research and Development Expenses

Research and development expenses consist primarily of costs incurred for our research activities, including our product discovery efforts and the development of our product candidates, which include:

- employee-related expenses, including salaries, benefits and equity-based compensation expense;
- costs of services performed by third parties that conduct research and development and preclinical activities on our behalf;

- costs of purchasing lab supplies and non-capital equipment used in our preclinical activities and in manufacturing preclinical study materials;
- consultant fees;
- facility costs, including rent, depreciation and maintenance expenses; and
- fees and other payments related to acquiring and maintaining licenses under our third-party licensing agreements.

Research and development costs are expensed as incurred. Nonrefundable advance payments for research and development goods or services to be received in the future are deferred and capitalized. The capitalized amounts are expensed as the related goods are delivered or the services are performed. At this time, we cannot reasonably estimate or know the nature, timing or estimated costs of the efforts that will be necessary to complete the development of any product candidates we may identify and develop. This is due to the numerous risks and uncertainties associated with developing such product candidates, including the uncertainty of:

- successful completion of preclinical studies and Investigational New Drug-enabling studies;
- successful enrollment in, and completion of, clinical trials;
- receipt of marketing approvals from applicable regulatory authorities;
- establishing commercial manufacturing capabilities or making arrangements with third-party manufacturers;
- obtaining and maintaining patent and trade secret protection and non-patent exclusivity;
- launching commercial sales of the product, if and when approved, whether alone or in collaboration with others;
- acceptance of the product, if and when approved, by patients, the medical community and third-party payors;
- effectively competing with other therapies and treatment options;
- a continued acceptable safety profile following approval;
- enforcing and defending intellectual property and proprietary rights and claims; and
- achieving desirable medicinal properties for the intended indications.

A change in the outcome of any of these variables with respect to the development of any product candidates we may develop could significantly change the costs, timing and viability associated with the development of that product candidate.

Except for activities we perform in connection with our collaboration with Vertex, we do not track research and development costs on a program-by-program basis. We plan to track research and development costs for individual development programs when we identify a product candidate from the program that we believe we can advance into clinical trials. We incurred $0.3 million and $3.3 million of research and development expense during the year ended December 31, 2015 and the six months ended June 30, 2016, respectively, related to the collaboration with Vertex.

Research and development activities are central to our business model. We expect research and development costs to increase significantly for the foreseeable future as our current development programs progress and new programs are added.

General and Administrative Expenses

General and administrative expenses consist primarily of employee related expenses, including salaries, benefits, and equity-based compensation, for personnel in executive, finance, accounting, business development and human resources functions. Other significant costs include facility costs not otherwise included in research and development expenses, legal fees relating to patent and corporate matters, and fees for accounting and consulting services.

We anticipate that our general and administrative expenses will increase in the future to support continued research and development activities, potential commercialization of our product candidates and increased costs of operating as a public company. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, lawyers and accountants, among other expenses. We also anticipate increased expenses related to the reimbursements of third-party patent related expenses in connection with the ongoing interference proceeding with respect to certain of our in-licensed intellectual property. Additionally, we anticipate increased costs associated with being a public company, including expenses related to services associated with maintaining compliance with exchange listing and Securities and Exchange Commission, or the SEC, requirements, insurance costs and investor relations costs.

Results of Operations

Comparison of the Six Months Ended June 30, 2015 and 2016

The following table summarizes our results of operations for the six months ended June 30, 2015 and 2016, together with the dollar change in those items:

	Six Months Ended June 30,		Period-to-Period Change
	2015	2016	
	(in thousands of dollars)		
Collaboration revenue	$ —	$ 1,271	$ 1,271
Operating expenses:			
Research and development	2,650	14,614	11,964
General and administrative	4,711	14,867	10,156
Total operating expenses	7,361	29,481	22,120
Loss from operations	(7,361)	(28,210)	(20,849)
Other (expense) income, net	(43)	2,680	2,723
Net loss before benefit from income taxes	(7,404)	(25,530)	(18,126)
Benefit from (provision for) income taxes	216	(76)	(292)
Net loss	$ (7,188)	$ (25,606)	$ (18,418)

Collaboration Revenue

We recognized collaboration revenue during the six months ended June 30, 2016 of $1.3 million, related to our collaboration agreement with Vertex. We did not record any revenue during the six months ended June 30, 2015.

Research and Development Expenses

Research and development expenses increased by $12.0 million to $14.6 million for the six months ended June 30, 2016, from $2.7 million for the six months ended June 30, 2015. The increase in research and development expenses was primarily attributable to an increase in employee costs of $4.6 million associated with

salaries, benefits and equity-based compensation expenses from hiring additional personnel, an increase in variable R&D program costs of $2.6 million, an increase in facilities expense of $4.1 million, principally associated with the establishment in February 2015 of our research and development center in Cambridge, Massachusetts, and an increase in licensing fees and related payments of $0.3 million.

General and Administrative Expenses

General and administrative expenses increased by $10.2 million to $14.9 million for the six months ended June 30, 2016, from $4.7 million for the six months ended June 30, 2015. The increase in general and administrative expenses was primarily attributable to increased employee costs of $3.6 million, associated with salaries, benefits and equity-based compensation expenses from hiring additional personnel, increased consulting and professional fees of $2.0 million, and increased intellectual property costs of $2.0 million, including third-party costs to procure the issuance of patents in jurisdictions outside the United States and costs related to the ongoing interference proceedings with respect to certain of our in-licensed intellectual property, and an increase in other general and administrative expenses of $2.5 million, of which $1.9 million related to the Company's advanced pay settlement liability.

Other (Expense) Income, Net

Other (expense) income, net increased by $2.7 million for the six months ended June 30, 2016 due to a gain on extinguishment of convertible loans of $11.5 million, offset by an increase in the loss from equity method investment of $0.7 million, and an increase in interest expense on the convertible loans of $8.0 million.

Comparison of the Years Ended December 31, 2014 and 2015

The following table summarizes our results of operations for the years ended December 31, 2014 and 2015, together with the dollar change in those items:

	Year Ended December 31,		Period-to-Period Change
	2014	2015	
	(in thousands of dollars)		
Collaboration revenue	$ —	$ 247	$ 247
Operating expenses:			
Research and development	1,513	12,573	11,060
General and administrative	5,114	13,403	8,289
Total operating expenses	6,627	25,976	19,349
Loss from operations	(6,627)	(25,729)	(19,102)
Other expense, net	(236)	(92)	144
Net loss before benefit from income taxes	(6,863)	(25,821)	(18,958)
Benefit from (provision for) income taxes .	63	(7)	(70)
Net loss	$ (6,800)	$ (25,828)	$ (19,028)

Collaboration Revenue

We recognized collaboration revenue during the year ended December 31, 2015 of $0.2 million, related to our collaboration agreement with Vertex. We did not record any revenue during the year ended December 31, 2014.

Research and Development Expenses

Research and development expenses increased by $11.1 million to $12.6 million for the year ended December 31, 2015, from $1.5 million for the year ended December 31, 2014. The increase in research and

development expenses was primarily attributable to an increase in employee costs of $4.8 million associated with salaries, benefits and equity-based compensation expenses from hiring additional personnel, an increase in professional service expense of $2.0 million, an increase in facilities expense of $2.3 million, principally associated with the establishment in February 2015 of our research and development center in Cambridge, Massachusetts, and an increase in licensing fees and related payments of $1.4 million.

General and Administrative Expenses

General and administrative expenses increased by $8.3 million to $13.4 million for the year ended December 31, 2015, from $5.1 million for the year ended December 31, 2014. The increase in general and administrative expenses was primarily attributable to increase in employee costs of $1.9 million associated with salaries, benefits and equity-based compensation expenses from hiring additional senior personnel, increased consulting and professional fees of $3.2 million, including directors' fees, audit and accounting fees, and consultant fees; and increased intellectual property costs of $1.9 million, including third-party costs to procure the issuance of patents in jurisdictions outside the United States and costs related to the ongoing interference proceedings with respect to our in-licensed intellectual property.

Other Expense, Net

Other expense, net decreased by $0.1 million for the year ended December 31, 2015 due to a decrease in the loss on foreign currency remeasurement of $0.2 million, offset by an increase in non-cash interest expense related to the convertible loans of $0.1 million.

Liquidity and Capital Resources

Overview

From our inception through June 30, 2016, we raised an aggregate of $293.4 million, of which $125.2 million consisted of gross proceeds from private placements of preferred shares, $73.2 million from the issuance of convertible loans, an up-front payment under our collaboration agreement with Vertex of $75.0 million and a technology access fee from our joint venture with Bayer HealthCare of $20.0 million.

As of June 30, 2016, we had $246.8 million in cash, of which approximately $242.2 million was held outside of the United States.

Preferred Share Financing

In October 2013, we issued 440,001 Series A-1 Preferred Shares for CHF 1.14 ($1.28) per share, resulting in gross proceeds of CHF 0.5 million ($0.6 million). Pursuant to the terms of the Shareholders' Agreement between us and the holders of the Series A-1 Preferred Shares, the holders of the Series A-1 Preferred Shares had the right to purchase an additional 1,315,790 Series A-1 Preferred Shares at CHF 1.14 ($1.28) per share, or the Series A-1 Tranche Rights. In connection with the issuance of the Series A-2 Preferred Shares, the Series A-1 Tranche Rights were terminated without exercise in April 2014.

In April 2014, the Company issued 3,120,001 Series A-2 Preferred Shares in exchange for CHF 3.05 ($3.47) per share whereby CHF 1.45 ($1.65) per share was received upon issuance resulting in gross proceeds of CHF 4.5 million ($5.1 million) and the balance of CHF 1.60 ($1.82) per share was callable by our Board of Directors upon the occurrence of certain conditions. In February 2015, our Board of Directors called the remaining amounts to be invested under the Series A-2 Agreement resulting in additional gross proceeds of CHF 5.0 million ($5.3 million).

In April 2015, we issued 10,758,006 Series A-3 Preferred Shares in exchange for $4.24 per share whereby $2.12 per share was received upon issuance, resulting in gross proceeds of $22.8 million, and the balance of $2.12 per share was due upon the occurrence of certain milestones. As of December 31, 2015, none of the milestones had occurred and we had an outstanding subscription receivable of $22.8 million related to the Series A-3 Preferred Shares. In May 2016, our Board of Directors determined that the milestones had been achieved and called the remaining $22.8 million. Gross proceeds of $22.8 million were received in May 2016.

In May 2015, we issued 4,519,016 Series B Preferred Shares in exchange for CHF 6.20 ($6.74) per share resulting in gross proceeds of CHF 28.0 million ($30.5 million).

In January 2016, we issued 5,464,608 Series B Preferred Shares upon conversion of $38.4 million of convertible loans plus accrued interest with Vertex and certain existing shareholders and $35.0 million of convertible loans with Bayer BV at a conversion price of $13.43 per share.

In June 2016, the Company issued 2,834,252 Series B Preferred Shares in exchange for $13.43 per share resulting in gross proceeds of $38.1 million.

Convertible Loan Financings

On October 26, 2015, we entered into a Convertible Loan Agreement with Vertex and certain existing shareholders, or the Convertible Loan, under which we could borrow up to $40.0 million. The Convertible Loan accrued interest at 2.5% per annum and had an initial maturity date of April 26, 2016, subject to acceleration upon the occurrence of certain conditions stated in the Convertible Loan. On various dates between November 23, 2015 and December 7, 2015, we issued the Convertible Loan in exchange for aggregate net proceeds of $38.2 million. On January 29, 2016, all of the outstanding principal plus accrued interest under the Convertible Loan was automatically converted into 2,859,278 Series B Preferred Shares at a conversion price of $13.43 per share.

Concurrent with the execution of the JV Agreement, we entered into a Convertible Loan Agreement with Bayer BV for $35.0 million. The Bayer Convertible Loan accrued interest at 2.0% per annum and matured on January 29, 2016. Simultaneous with the issuance of the loan on January 29, 2016, the outstanding principal under the Bayer Convertible Loan was automatically converted into 2,605,330 Series B Preferred Shares at a conversion price of $13.43 per share.

Funding Requirements

Our primary uses of capital are, and we expect will continue to be, research and development services, compensation and related expenses, laboratory and related supplies, legal and other regulatory expenses, patent prosecution filing and maintenance costs for our licensed intellectual property and general overhead costs. We expect our expenses to increase compared to prior periods in connection with our ongoing activities, particularly as we continue research and development and preclinical activities and as we begin in 2017 to occupy our new office and laboratory facility. In addition, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company.

Because our research programs are still in preclinical development and the outcome of these efforts is uncertain, we cannot estimate the actual amounts necessary to successfully complete the development and commercialization of any future product candidates or whether, or when, we may achieve profitability. Until such time as we can generate substantial product revenues, if ever, we expect to finance our cash needs through a combination of equity or debt financings and collaboration arrangements. We are entitled to technology access fees and research payments under our collaboration with Vertex and the JV. Additionally, we are eligible to earn payments, in each case, on a per-product basis under the JV Agreement and our collaboration with Vertex. Except for these sources of funding, upon completion of this offering, we will not have any committed external source of liquidity. To the extent that we raise additional capital through the future sale of equity or debt securities, the ownership interest of our shareholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our existing shareholders. If we raise additional funds through collaboration arrangements in the future, we may have to relinquish valuable rights to our technologies, future revenue streams or product candidates or grant licenses on terms that may not be

favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Outlook

Based on our research and development plans and our timing expectations related to the progress of our programs, we expect that the net proceeds from this offering, including the proceeds from the Series B Private Placement Extension and concurrent private placement with Bayer BV, together with our existing cash, will enable us to fund our operating expenses and capital expenditures for at least the next 24 months, without giving effect to any additional proceeds we may receive under our collaboration agreement with Vertex and the JV. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we expect.

Our ability to generate revenue and achieve profitability depends significantly on our success in many areas, including: developing our delivery technologies and our CRISPR/Cas9 technology platform; selecting appropriate product candidates to develop; completing research and preclinical and clinical development of selected product candidates; obtaining regulatory approvals and marketing authorizations for product candidates for which we complete clinical trials; developing a sustainable and scalable manufacturing process for product candidates; launching and commercializing product candidates for which we obtain regulatory approvals and marketing authorizations, either directly or with a collaborator or distributor; obtaining market acceptance of our product candidates; addressing any competing technological and market developments; negotiating favorable terms in any collaboration, licensing or other arrangements into which we may enter; maintaining good relationships with our collaborators and licensors; maintaining, protecting and expanding our portfolio of intellectual property rights, including patents, trade secrets and know-how; and attracting, hiring and retaining qualified personnel.

Cash Flows

Comparison of the Six Months Ended June 30, 2015 and 2016

The following table provides information regarding our cash flows for the six months ended June 30, 2015 and 2016:

	Six Months Ended June 30,	
	2015	2016
	(in thousands)	
Net cash used in operating activities	$ (4,263)	$ (23,618)
Net cash (used in) provided by investing activities	(102)	18,621
Net cash provided by financing activities	58,251	95,925
Effect of exchange rate changes on cash	(160)	(40)
Net increase in cash and cash equivalents	$ 53,726	$ 90,888

Net Cash Used in Operating Activities

Net cash used in operating activities was $23.6 million for the six months ended June 30, 2016 and consisted primarily of net loss of $25.6 million adjusted for non-cash items (including equity-based compensation expense of $4.5 million, non-cash interest expense of $8.1 million and depreciation and amortization expense of $0.3 million, a gain on extinguishment of the Vertex convertible loan of $11.5 million, and loss from equity method investment of $0.7 million), an increase in prepaid expenses and other current assets of $2.6 million, and an increase in accounts receivable of $1.0 million, partially offset by an increase in accounts payable and accrued expenses of $5.0 million, deferred revenue of $0.7 million, and deferred rent of $0.2 million.

Net cash used in operating activities was $4.3 million for the six months ended June 30, 2015 and consisted primarily of a net loss of $7.2 million adjusted for non-cash items (including equity-based compensation expense of $1.5 million), along with an increase in prepaid expenses and other assets of $0.5 million, offset by an increase in accounts payable and accrued expenses of $2.3 million.

Net Cash (Used in) Provided by Investing Activities

Net cash provided by investing activities was $18.6 million during the six months ended June 30, 2016, compared to $0.1 million used in the six months ended June 30, 2015. Net cash provided by investing activities during the six months ended June 30, 2016 consisted of proceeds of $20.0 million from the contribution of intellectual property to Casebia LLP, offset by contributions to Casebia LLP of $0.1 million, and the purchase of property and equipment of $1.3 million primarily associated with the commencement of internal research and development. We expect purchases of property and equipment to continue to increase in each of 2016 and 2017 as we build-out and outfit the office and laboratory space we expect to occupy beginning in 2017.

Net Cash Provided by Financing Activities

Net cash provided by financing activities was $95.9 million for the six months ended June 30, 2016, compared to $58.3 million for the six months ended June 30, 2015. The cash provided by financing activities for the six months ended June 30, 2016 consisted of net proceeds of $35.0 million from the Bayer Convertible Loan, which was immediately converted into 2,605,330 Series B Preferred Shares, $22.8 million upon receipt of the Series A-3 subscription receivable and $38.1 million of gross proceeds from the issuance of Series B Preferred Shares in June 2016. The cash provided by financing activities for the six months ended June 30, 2015 primarily consisted of net proceeds of $58.3 million from the receipt of the subscription receivable for the Series A-2 Preferred Shares, proceeds from Series A-3 Preferred Shares, and proceeds from Series B Preferred Shares.

Comparison of the Years Ended December 31, 2014 and 2015

The following table provides information regarding our cash flows for the years ended December 31, 2014 and 2015:

	Year Ended December 31,	
	2014	2015
	(in thousands)	
Net cash (used in) provided by operating activities	$ (4,793)	$ 59,428
Net cash used in investing activities	—	(1,154)
Net cash provided by financing activities	5,123	96,733
Effect of exchange rate changes on cash	254	9
Net increase in cash and cash equivalents	$ 584	$ 155,016

Net Cash (Used in) Provided by Operating Activities

Net cash provided by operating activities was $59.4 million for the year ended December 31, 2015 and consisted primarily of an increase in deferred revenue of $75.1 million from upfront payments received in connection with the collaboration agreement with Vertex along with an increase in accounts payable and accrued expenses of $7.7 million, partially offset by net loss of $25.8 million adjusted for non-cash items (including equity-based compensation expense of $3.7 million, non-cash interest expense of $0.1 million and depreciation and amortization expense of $0.1 million), an increase in prepaid expenses and other current assets of $1.0 million, and an increase in restricted cash to secure letters of credit related to our facility lease in Cambridge, Massachusetts, of $0.7 million.

Net cash used in operating activities was $4.8 million for the year ended December 31, 2014 and consisted primarily of a net loss of $6.8 million adjusted for non-cash items (including equity-based compensation expense of $0.7 million, amortization expense of $38,000 and foreign currency remeasurement loss of $0.3 million), along with an increase in accounts payable and accrued expenses of $1.6 million.

Net Cash Used in Investing Activities

Net cash used in investing activities was $1.2 million during the year ended December 31, 2015, compared to $0 during the year ended December 31, 2014, which resulted solely from the purchase of property and equipment primarily associated with the commencement of internal research and development operations in Cambridge, Massachusetts. We expect purchases of property and equipment to continue to increase in each of 2016 and 2017 as we build-out and outfit the office and laboratory space we expect to occupy beginning in 2017.

Net Cash Provided by Financing Activities

Net cash provided by financing activities was $96.7 million for the year ended December 31, 2015, compared to $5.1 million for the year ended December 31, 2014. The cash provided by financing activities for the year ended December 31, 2015 primarily consisted of net proceeds of $5.3 million related to a subscription receivable for Series A-2 Preferred Shares, $22.9 million from the issuance of Series A-3 Preferred Shares, $30.5 million from the issuance of Series B Preferred Shares and $38.2 million from the issuance of a convertible loan with Vertex and certain existing shareholders. The cash provided by financing activities for the year ended December 31, 2014 primarily consisted of net proceeds of $5.1 million from the issuance of Series A-2 Preferred Shares.

Contractual Obligations

The following table summarizes our significant contractual obligations as of December 31, 2015:

	Payments due by period				
	Total	Less than 1 Year	1 - 3 Years	3 - 5 Years	More than 5 Years
	(in thousands of dollars)				
Operating lease obligations(1)	$ 8,600	$ 1,291	$ 2,722	$ 2,887	$1,700
Licensing agreement(2)	130	26	52	52	—
Sponsored research agreements	1,795	1,230	565	—	—
Total contractual cash obligations	$10,525	$ 2,547	$ 3,339	$ 2,939	$1,700

(1) Represents future minimum lease payments under our non-cancelable operating leases. The minimum lease payments above do not include any related common area maintenance charges or real estate taxes.
(2) Represents perpetual licensing and patent assignment agreement with one of our founders. As the agreement end date is undetermined, we have not included an amount for the “More than 5 Years” criteria.

The table above does not include $56.5 million related to two leases for office and laboratory space entered into subsequent to December 31, 2015. Additionally, the table above does not include potential milestone fees, sublicense fees, royalty fees, licensing maintenance fees, and reimbursement of patent maintenance costs that we may be required to pay under agreements we have entered into to license intellectual property. We have not included such potential milestone royalty obligations in the table above because they are contingent upon the occurrence of future events and the timing and likelihood of such potential obligations are not known with certainty. We have not included our obligation to pay patent prosecution filing and maintenance costs for intellectual property licensed from Dr. Emmanuelle Charpentier as such costs cannot be reliably estimated until incurred. For further information regarding these agreements and amounts that could become payable in the future under these agreements, please see the section of this prospectus titled “Business—License Agreements.”

We enter into agreements in the normal course of business with vendors for preclinical research studies and other services and products for operating purposes. We have not included these payments in the table of contractual obligations above since the contracts are cancelable at any time by us, generally upon 30 days prior written notice to the vendor, and therefore we believe that our non-cancelable obligations under these agreements are not material.

In May 2016, we entered into an agreement to sublease office and laboratory space in Cambridge, Massachusetts, for an initial term of ten years with an option to extend the lease for an additional five years. Our contractual obligation related to lease payments over the term of the sublease is approximately $56.2 million commencing in February 2017.

We have engaged several research institutions to identify new delivery strategies and applications of the CRISPR/Cas9 technology. As a result of these efforts, we have agreed to sponsor three research programs during 2016, with one of these continuing through 2018.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined under applicable SEC rules.

Critical Accounting Policies and Significant Judgments and Estimates

This discussion and analysis of our financial condition and results of operations is based on our financial statements, which we have prepared in accordance with U.S. generally accepted accounting principles. We believe that several accounting policies are important to understanding our historical and future performance. We refer to these policies as critical because these specific areas generally require us to make judgments and estimates about matters that are uncertain at the time we make the estimate, and different estimates—which also would have been reasonable—could have been used. On an ongoing basis, we evaluate our estimates and judgments, including those described in greater detail below. We base our estimates on historical experience and other market-specific or other relevant assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in the notes to our financial statements included elsewhere in this prospectus, we believe that the following accounting policies are the most critical to aid you in fully understanding and evaluating our financial condition and results of operations.

Revenue

We recognize revenue for each unit of accounting when all of the following criteria are met: (i) persuasive evidence of an arrangement exists, (ii) delivery has occurred or services have been rendered, (iii) the seller's price to the buyer is fixed or determinable and (iv) collectability is reasonably assured.

The terms of our collaboration and license agreements contain multiple deliverables, which include licenses to CRISPR/Cas9-based therapeutic products directed to specific targets, referred to as exclusive licenses, as well as research and development activities to be performed by us on behalf of the collaboration partner related to the licensed targets. Payments that we may receive under these agreements include nonrefundable technology access fees, payments for research activities, payments based upon the achievement of specified milestones and royalties on any resulting net product sales.

Multiple Element Arrangements

We evaluate multiple-element arrangements to determine (i) the deliverables included in the arrangement and (ii) whether the individual deliverables represent separate units of accounting or whether they must be accounted for as a combined unit of accounting. When deliverables are separable, consideration received is allocated to the separate units of accounting based on the relative selling price method and the appropriate revenue recognition principles are applied to each unit. When we determine that an arrangement should be

accounted for as a single unit of accounting, we must determine the period over which the performance obligations will be performed and revenue will be recognized. This evaluation requires us to make judgments about the individual deliverables and whether such deliverables are separable from the other aspects of the contractual relationship. Deliverables are considered separate units of accounting provided that (i) the delivered item has value to the customer on a standalone basis and (ii) the arrangement includes a general right of return with respect to the delivered item, delivery or performance of the undelivered item is considered probable and substantially in our control. In assessing whether an item has standalone value, we consider factors such as the research, development, manufacturing and commercialization capabilities of the collaboration partner and the availability of the associated expertise in the general marketplace. In addition, we consider whether the collaboration partner can use any other deliverable for its intended purpose without the receipt of the remaining deliverable, whether the value of the deliverable is dependent on the undelivered item, and whether there are other vendors that can provide the undelivered items.

The consideration received under an arrangement that is fixed or determinable is then allocated among the separate units of accounting based on the relative selling prices of the separate units of accounting. We determine the selling price of a unit of accounting within each arrangement using (i) vendor-specific objective evidence of selling price, if available; (ii) third-party evidence of selling price if vendor-specific objective evidence is not available; or (iii) best estimate of selling price, if neither vendor-specific objective evidence nor third-party evidence is available. Determining the best estimate of selling price for a unit of accounting requires significant judgment. In developing the best estimate of selling price for a unit of accounting, we consider applicable market conditions and relevant entity-specific factors, including factors that were contemplated in negotiating the agreement with the customer and estimated costs. We validate the best estimate of selling price for units of accounting by evaluating whether changes in the key assumptions used to determine the best estimate of selling price will have a significant effect on the allocation of arrangement consideration between multiple units of accounting.

We recognize arrangement consideration allocated to each unit of accounting when all of the revenue recognition criteria are satisfied for that particular unit of accounting. In the event that a deliverable does not represent a separate unit of accounting, we recognize revenue from the combined unit of accounting over the contractual or estimated performance period for the undelivered items, which is typically the term of our research and development obligations. If there is no discernible pattern of performance or objectively measurable performance measures do not exist, then we recognize revenue under the arrangement on a straight-line basis over the period we are expected to complete our performance obligations. Conversely, if the pattern of performance over which the service is provided to the customer can be determined and objectively measurable performance measures exist, then we recognize revenue under the arrangement using the proportional performance method. Revenue recognized is limited to the lesser of the cumulative amount of payments received or the cumulative amount of revenue earned, as determined using the straight-line method or proportional performance method, as applicable, as of the period ending date.

Significant management judgment is required in determining the level of effort required under an arrangement and the period over which we are expected to complete our performance obligations under an arrangement. Steering committee services that are not inconsequential or perfunctory and that are determined to be performance obligations are combined with other research services or performance obligations required under an arrangement, if any, in determining the level of effort required in an arrangement and the period over which we expect to complete our aggregate performance obligations.

Recognition of Milestones and Royalties

Our collaboration and license agreements include contingent milestone payments related to specific development, regulatory and sales-based milestones. Development and regulatory milestones are typically payable when a product candidate initiates or advances in clinical trial phases, upon submission for marketing approval with regulatory authorities, and upon receipt of actual marketing approvals for a therapeutic or for additional indications. Sales-based milestones are typically payable when annual sales reach specified levels.

We evaluate whether each milestone is substantive and at risk to both parties on the basis of the contingent nature of the milestone. This evaluation includes an assessment of whether: (i) the consideration is commensurate with either our performance to achieve the milestone or the enhancement of the value of the delivered item as a result of a specific outcome resulting from our performance to achieve the milestone, (ii) the consideration relates solely to past performance and (iii) the consideration is reasonable relative to all of the deliverables and payment terms within the arrangement. We evaluate factors such as the scientific, clinical, regulatory, commercial and other risks that must be overcome to achieve the particular milestone and the level of effort and investment required to achieve the particular milestone in making this assessment. There is considerable judgment involved in determining whether a milestone satisfies all of the criteria required to conclude that a milestone is substantive. We will recognize revenue in its entirety upon successful accomplishment of any substantive milestones, assuming all other revenue recognition criteria are met. Milestones that are not considered substantive are recognized as earned if there are no remaining performance obligations or over the remaining period of performance, with a cumulative catch-up being recognized for the elapsed portion of the period of performance, assuming all other revenue recognition criteria are met.

Nonrefundable research, development and regulatory milestones that are expected to be achieved as a result of our efforts during the period of our performance obligations under the collaboration and license agreements are generally considered to be substantive and are recognized as revenue upon the achievement of the milestone, assuming all other revenue recognition criteria are met. If not considered to be substantive, revenue from achievement of milestones is initially deferred and recognized over the remaining term of our performance obligations. Milestones that are not considered substantive because we do not contribute effort to their achievement are recognized as revenue upon achievement, assuming all other revenue recognition criteria are met, as there are no undelivered elements remaining and no continuing performance obligations on our part.

Amounts received prior to satisfying the revenue recognition criteria listed above are recorded as deferred revenue in the accompanying balance sheets. Although we follow detailed guidelines in measuring revenue, certain judgments affect the application of our revenue policy. For example, in connection with our existing collaboration agreement, we have recorded on the balance sheet short-term and long-term deferred revenue based on our best estimate of when such revenue will be recognized. However, this estimate is based on our current research plan and, if our research plan should change in the future, we may recognize a different amount of deferred revenue over the following 12-month period.

The estimate of deferred revenue also reflects management's estimate of the periods of our involvement in the collaboration. Our primary performance obligations under this collaboration consist of research and development services. In certain instances, the timing of satisfying these obligations can be difficult to estimate. Accordingly, our estimates may change in the future. Such changes to estimates would result in a change in prospective revenue recognition amounts. If these estimates and judgments change over the course of our collaborative agreement, it may affect the timing and amount of revenue that we will recognize and record in future periods.

Variable Interest Entities

We review each legal entity formed by parties related to the Company to determine whether or not the entity is a Variable Interest Entity, or VIE, in accordance with FASB ASC Topic 810, Consolidation. If the entity is a VIE, we assesses whether or not we are the primary beneficiary of that VIE based on a number of factors, including (i) which party has the power to direct the activities that most significantly affect the VIE's economic performance, (ii) the parties' contractual rights and responsibilities pursuant to any contractual agreements and (iii) which party has the obligation to absorb losses or the right to receive benefits from the VIE. If we determine that we are the primary beneficiary of a VIE, we treat the VIE as a business combination and consolidate the financial statements of the VIE into our consolidated financial statements at the time that determination is made. On a quarterly basis, we evaluate whether it continues to be the primary beneficiary of any consolidated VIEs. If we determine that we are no longer the primary beneficiary of a consolidated VIE, or no longer have a variable interest in the VIE, we deconsolidate the VIE in the period that the determination is made.

If we determine that we are the primary beneficiary of a VIE that meets the definition of a business, we measure the assets, liabilities and non-controlling interests of the newly consolidated entity at fair value in accordance with FASB ASC Topic 805, Business Combinations on the date we become the primary beneficiary.

For the years ended December 31, 2014 and 2015, and the six months ended June 30, 2015 and 2016, we consolidated the financial statements of TRACR Hematology, Limited, or TRACR, into our consolidated financial statements as a VIE. See Note 4 to the consolidated financial statements for further details relating to the consolidation of TRACR as a VIE.

Equity-Based Compensation

We measure equity-based awards to employees and members of the board of directors based on the grant- date fair value of those awards and recognize equity-based compensation expense, net of estimated forfeitures, on a straight-line basis over the requisite service period which is generally the vesting period of the award. In developing a forfeiture rate estimate, we considered our historical experience with pre-vesting forfeitures for service-based awards. We estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates.

We measure equity-based awards to consultants and non-employees based on the fair value on the grant date. Compensation expense is recognized over the period during which services are rendered by such consultants and non-employees until completed. At the end of each financial reporting period prior to completion of such services, the fair value of these awards is remeasured using the then-current fair value of the award.

We classify equity-based compensation expense in our consolidated statement of operations in the same manner in which the award recipient's salary and related costs are classified or in which the award recipient's service payments are classified.

Our restricted share awards are subject to contingent repurchase features which allows the Company to repurchase unvested shares if certain contingent events outside of the control of the Company occur. At no time during 2014, 2015, or the six months ended June 30, 2016 were these events deemed probable of occurring, and as such, the awards are not subject to liability accounting.

Determination of Fair Value of Common Shares on Grant Dates

As there has been no public market for our equity instruments to date, the estimated fair value of our common shares has been determined by our board of directors as of the grant date, with input from management, considering our most recently available third-party valuations of common shares and our board of directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These third party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. Our common share valuations were prepared using either an option-pricing method, or OPM, or a probability-weighted expected return method, or PWERM, which used a combination of market approaches and an income approach to estimate our enterprise value. The OPM treats common securities and preferred securities as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common shares have value only if the funds available for distribution to members are expected to exceed the value of the preferred security liquidation preference at the time of the liquidity event, such as a strategic sale or a merger. The PWERM is a scenario-based methodology that estimates the fair value of common shares based upon an analysis of future values for the company, assuming various outcomes. The common share values are based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of common and preferred securities. The future value of the common shares under each outcome is discounted back to the valuation date at an

appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common shares. These third-party valuations were performed at various dates, which resulted in the following valuations of our common shares:

Valuation Date	Fair Value of Common Shares
November 5, 2013	$ 0.40
April 14, 2014	$ 1.52
April 15, 2015	$ 2.07
September 10, 2015	$ 3.91
November 4, 2015	$ 5.60
December 17, 2015	$ 5.74
March 2, 2016	$ 5.83
June 3, 2016	$ 12.65

In addition to considering the results of these third-party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common shares as of each grant date, including:

- the prices of our preferred shares sold to or exchanged between outside investors in arm's length transactions, and the rights, preferences and privileges of our preferred shares as compared to those of our common shares, including the liquidation preferences of our preferred shares;
- the progress of our research and development efforts, including the status of preclinical studies for our product candidates;
- the lack of liquidity of our equity as a private company;
- our stage of development and business strategy and the material risks related to our business and industry;
- the achievement of enterprise milestones, including entering into collaboration agreements;
- the valuation of publicly traded companies in the life sciences and biotechnology sectors, as well as recently completed mergers and acquisitions of peer companies;
- any external market conditions affecting the biotechnology industry, and trends within the biotechnology industry;
- the likelihood of achieving a liquidity event for the holders of our common shares, such as an initial public offering, or IPO, or a sale of our company, given prevailing market conditions; and
- the analysis of IPOs and the market performance of similar companies in the biopharmaceutical industry.

The assumptions underlying these valuations represent management's best estimates, which involve inherent uncertainties and the application of management judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our equity-based compensation expense could be materially different.

Following the closing of this offering, the fair value of our common shares will be determined based on the quoted market price.

Equity-based Award Grants

The following table summarizes by grant date the number of restricted common shares and common shares issuable upon exercise of options granted between January 1, 2015 and June 30, 2016, the per share purchase or exercise prices, the fair value of the common shares on the grant dates, and the estimated fair value per share utilized to calculate equity-based compensation expense.

Grant Date	Share Pool	Type of Award	Number of Shares	Purchase or Exercise Price per Share	Fair Value of Common Shares on Grant Date(1)	Retrospective Fair Values of Common Shares on Grant Date(2)	Estimated Fair Values Per Share of Awards on Grant Date
April 1, 2015	Crispr AG	Common Shares	852,846	$ —	$ 1.87	$ 2.09	$ 2.09
April 1, 2015	Crispr AG	Restricted Share Awards	656,031	$ —	$ 1.87	$ 2.09	$ 2.09
May 7, 2015	2015 Option Plan	Options	62,810	$ 1.97	$ 1.97	$ 2.20	$ 1.54
September 10, 2015	Fay Corp.	Restricted Share Awards	759,204	$ —	$ 1.85	$ 3.91	$ 3.91
September 10, 2015	2015 Option Plan	Restricted Share Awards	134,047	$ 1.85	$ 1.85	$ 3.91	$ 2.07
September 10, 2015	2015 Option Plan	Options	1,640,593	$ 1.85	$ 1.85	$ 3.91	$ 3.06-3.49
November 4, 2015	2015 Option Plan	Options	194,919	$ 5.60	$ 5.60	$ 5.60	$ 3.81
December 17, 2015	2015 Option Plan	Options	41,664	$ 5.74	$ 5.74	$ 5.74	$ 3.91
December 17, 2015	2015 Option Plan	Restricted Share Awards	8,747	$ —	$ 5.74	$ 5.74	$ 5.74
March 2, 2016	2015 Option Plan	Options	444,922	$ 5.83	$ 5.83	$ 5.83	$ 3.92
June 3, 2016	2015 Option Plan	Options	327,330	$ 12.65	$ 12.65	$ 12.65	$ 8.57
June 3, 2016	Fay Corp. & Founders	Common Shares	290,400	—	$ 12.65	$ 12.65	$ 12.65

(1) Represents the determination by our board of directors of the fair value of our common shares on the date of grant, taking into consideration the various objective and subjective factors described below.
(2) The fair value of common shares at the grant date was adjusted in connection with a retrospective fair value assessment for financial reporting purposes.

Equity-based compensation expense totaled approximately $0.7 million, $3.7 million, $1.5 million and $4.5 million for the years ended December 31, 2014 and 2015 and the six months ended June 30, 2015 and 2016, respectively. As of December 31, 2015 and June 30, 2016, we had $4.3 million and $7.5 million, respectively, of unrecognized compensation expense related to stock option awards, which are expected to be recognized over weighted-average remaining vesting periods of approximately 3.3 years and 3.2 years, respectively. As of December 31, 2015 and June 30, 2016, we had $4.7 million and $7.6 million, respectively, of unrecognized compensation expense related to restricted share awards, which are expected to be recognized over weighted- average remaining vesting periods of approximately 2.6 years and 2.0 years, respectively. We expect the impact of our equity-based compensation expense for restricted shares and options to purchase common shares granted to employees and non-employees to grow in future periods due to the potential increases in the value of our common shares and headcount.

JOBS Act

In April 2012, the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, was enacted. Section 107 of the JOBS Act provides that an “emerging growth company,” or an EGC, can take advantage of the extended transition period for complying with new or revised accounting standards. Thus, an EGC can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

We are in the process of evaluating the benefits of relying on other exemptions and reduced reporting requirements under the JOBS Act. Subject to certain conditions, as an EGC, we intend to rely on certain of these exemptions, including exemptions from the requirement to provide an auditor’s attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act, SOX, and

from any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements, known as the auditor discussion and analysis. We will remain an EGC until the earlier of: (i) the last day of the fiscal year in which we have total annual gross revenues of $1 billion or more, (ii) the last day of the fiscal year following the fifth anniversary of the date of the completion of this offering, (iii) the date on which we have issued more than $1 billion in nonconvertible debt during the previous three years or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

Recent Accounting Pronouncements

Refer to Note 2, "Summary of Significant Accounting Policies," in the accompanying notes to the consolidated financial statements for a discussion of recent accounting pronouncements. There were no new accounting pronouncements adopted during 2015 that had a material effect on our financial statements.

Qualitative and Quantitative Disclosures about Market Risk

Foreign Exchange Market Risk

As a result of our foreign operations, we face exposure to movements in foreign currency exchange rates, primarily the Swiss Franc and British Pound, against the U.S. dollar. The current exposures arise primarily from cash, accounts payable, and intercompany receivables and payables.

Taxation

We are subject to corporate taxation in Switzerland.

We are also entitled under Swiss laws to carry forward any losses incurred for a period of seven years and can offset our losses carried forward against future profits. As of December 31, 2015, we reported tax loss carry forwards from inception through 2015 for purposes of Swiss federal direct taxes in the aggregate amount of CHF 22.0 million. Due to the expected mixed company status (in case the advance tax ruling with respect to the mixed company status will be accepted) the tax losses at cantonal level amount to CHF 4.1 million. These tax losses could be available to offset future taxable income. If not used, these tax losses will expire seven years after the year in which they were incurred. Due to our limited income, there is a high risk that the tax loss carry forwards will expire partly or entirely.

The corporate profit tax rate in the Canton of Basel-Stadt where we are domiciled amounts (federal and cantonal) currently to a maximum of 27% before tax (taxes are deductible). We applied for a tax privilege as a mixed company for the years 2014 and 2015, and this application is pending. The Cantonal corporate profit tax rate for mixed companies is between 8% and 14% (federal and cantonal). The Canton does from time to time amend the level of taxation levied on corporations and there is no certainty that the tax rate currently in effect will not change in the future. For example, the government of the Canton Basel-Stadt is currently proposing to lower the cantonal corporate tax rate to 6.5% if the proposed corporate tax reform III is enacted. Corporate tax reform III would also abolish the mixed company privilege within a period of two years and corporate tax rates will be adapted. This proposal, if enacted, would result in a corporate tax rate of around 13% (federal and cantonal).

BUSINESS

You should read the following discussion together with our consolidated financial statements and related notes and other financial information appearing in this prospectus. Some of the information contained in this discussion or set forth elsewhere in this prospectus includes forward-looking statements that involve risks and uncertainties. You should review the sections of this prospectus captioned "Risk Factors" and "Special Note Regarding Forward-Looking Statements" for a discussion of important factors that could cause our actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a leading gene editing company focused on the development of CRISPR/Cas9-based therapeutics. CRISPR/Cas9 stands for Clustered, Regularly Interspaced Short Palindromic Repeats (CRISPR) Associated protein-9 and is a revolutionary technology for gene editing, the process of precisely altering specific sequences of genomic DNA. We are applying this technology to treat a broad set of rare and common diseases by disrupting, correcting or regulating disease-related genes. We believe that our scientific expertise, together with our approach, may enable an entirely new class of highly effective and potentially curative treatments for patients for whom current biopharmaceutical approaches have had limited success. Our most advanced programs target beta-thalassemia and sickle cell disease, two hemoglobinopathies that have high unmet medical need.

The use of CRISPR/Cas9 for gene editing was derived from a naturally occurring viral defense mechanism in bacteria and has been described by leading scientific journals as a breakthrough technology. The application of CRISPR/Cas9 for gene editing was co-invented by one of our scientific founders, Dr. Emmanuelle Charpentier, a director of the Max Planck Institute for Infection Biology in Berlin. Dr. Charpentier and her collaborators published work elucidating the mechanism by which the Cas9 endonuclease, a key component of CRISPR/Cas9, can be programmed to cut double-stranded DNA at specific locations. We have acquired rights to the foundational intellectual property encompassing CRISPR/Cas9 and related technologies from Dr. Charpentier, and continue to strengthen our intellectual property estate through our own research and additional in-licensing efforts, furthering our leadership in the development of CRISPR/Cas9-based therapeutics.

Our product development and partnership strategies are designed to exploit the full potential of the CRISPR/Cas9 platform while maximizing the probability of successfully developing our product candidates. We are pursuing a two-pronged product development strategy utilizing both *ex vivo* and *in vivo* approaches. Our most advanced programs use an *ex vivo* approach, whereby cells are harvested from a patient, treated with a CRISPR/Cas9-based therapeutic and reintroduced. We believe that an *ex vivo* approach is less technically challenging than an *in vivo* approach. We have chosen to conduct our lead programs in hemoglobinopathies given the relative ease of editing genes *ex vivo*, the significant unmet medical need associated with beta-thalassemia and sickle cell disease and the well-understood genetics of these diseases. Beyond these lead programs, we are pursuing a number of additional *ex vivo* applications, as well as select *in vivo* applications, whereby the CRISPR/Cas9 product candidate is delivered directly to target cells within the human body. Our initial *in vivo* applications will leverage well-established delivery technologies for gene-based therapeutics.

Given the numerous potential therapeutic applications for CRISPR/Cas9, we have partnered strategically to broaden the indications we can pursue and accelerate development of programs by accessing specific disease-area expertise. In particular, we established a joint venture with Bayer AG and its subsidiaries, or Bayer, in which we have a 50% interest, and a collaboration agreement with Vertex Pharmaceuticals Incorporated, or Vertex, in order to pursue specific indications where these companies have outstanding and distinctive capabilities. The significant resource commitments by our partners underscore the potential of our platform, as well as their dedication to developing transformative CRISPR/Cas9-based treatments.

Our mission is to create transformative gene-based medicines for serious human diseases. We believe that our highly experienced team, together with our scientific expertise, product development strategy, partnerships and intellectual property position us as a leader in the development of CRISPR/Cas9-based therapeutics.

Our Team

We have assembled a management team with years of highly relevant experience to enable the development of our gene editing platform and the advancement of our product candidates. This team has extensive expertise in drug discovery and development, clinical and regulatory strategy, as well as business strategy and operations. Some of our key team members include:

- ***Rodger Novak, M.D., our Co-Founder and Chief Executive Officer,*** who brings over a decade of extensive preclinical and clinical development experience from his previous biopharma roles. His prior positions include Global Head of Anti-Infectives Research and Development at Sanofi, co-founder and Chief Operating Officer of Nabriva Therapeutics AG, Deputy Head of the Sandoz GmbH Antibiotic Research Institute, and his role as a Professor of Microbiology at the Vienna Biocenter in Austria.
- ***Sven Ante (Bill) Lundberg, M.D., our Chief Scientific Officer,*** who brings wide-ranging expertise across all phases of drug development from his more than 15 years of experience in the life sciences industry. These include his most recent position as the Vice President and Head of Translational Medicine at Alexion Pharmaceuticals Inc., where he was responsible for all research and development efforts, from discovery to clinical proof-of-concept, and previous leadership positions at Taligen Therapeutics, Inc., Wyeth and Genzyme Corporation.
- ***Samarth Kulkarni, Ph.D., our Chief Business Officer,*** previously a Partner at McKinsey & Company where he co-led the biotechnology practice and advised leading biopharmaceuticals companies on strategic and business development matters.

Our management team is actively advised by a five-member scientific advisory board, which includes our co-founder, Dr. Emmanuelle Charpentier. We have assembled a team of advisors with know-how in complementary disciplines necessary for the development of our CRISPR/Cas9 product candidates. Our advisors are considered renowned leaders in delivery technologies, mechanisms of DNA repair, stem cell engineering, gene silencing and CRISPR/Cas9 gene editing. Our scientific advisory board regularly meets with the senior members of our research and development teams, including our Chief Scientific Officer, to provide insight and advice on our research and development efforts. In addition, we regularly consult with individual members of our scientific advisory board on matters pertaining to their respective areas of expertise. We believe that our advisory board's expertise is a pivotal asset for our product development efforts.

Our Strategy

Our objective is to be a leader in the development of novel CRISPR/Cas9-based therapeutics, and to create transformative treatments for unaddressed or under-addressed human diseases. Key components of our strategy include:

- **Focus on the Hematopoietic System Through *Ex Vivo* Approaches.**
  - ***Rapidly Advance Lead Programs in Hemoglobinopathies*.** Our hemoglobinopathy programs employ an *ex vivo* gene editing strategy, supported by well-understood genetics and target patient populations with a high unmet medical need, making these programs suitable for rapid advancement through clinical development. We plan to file our clinical trial applications, or CTAs, to begin our first clinical trial for our hemoglobinopathy program targeting beta-thalassemia in late 2017 and for our hemoglobinopathy program targeting sickle cell disease in early 2018. In each case, the filing is subject to the identification and selection of guide RNA with acceptable efficiency.
  - ***Apply Our Hematopoietic Gene Editing Capabilities in Other Indications.*** There are numerous diseases that are potentially treatable through *ex vivo* gene editing of the

hematopoietic system. We plan to apply the capabilities we are developing in hemoglobinopathies to treat other diseases. We have launched programs in two such diseases, severe combined immunodeficiency disease, or SCID, and Hurler syndrome, a genetic metabolic disorder. In addition, we are utilizing our *ex vivo* gene editing expertise to advance our efforts in cell therapies for immuno-oncology applications.

- **Pursue Select Indications Requiring *In Vivo* Approaches.**
  - ***Target the Liver Using Readily Available Delivery Technologies.*** Clinically-validated viral and non-viral approaches for delivery of gene-based therapeutics to the liver are available today and we believe they are suitable for use in CRISPR/Cas9 product candidates. We intend to customize and use these delivery technologies for programs in hemophilia and genetic diseases of liver metabolism, including Glycogen Storage Disease Ia, or GSDIa. We are developing these programs in parallel with our *ex vivo* therapeutic candidates.
  - ***Optimize Delivery Technologies to Target Select* In Vivo *Indications Outside the Liver.*** We intend to pursue select *in vivo* programs targeting diseases such as Duchenne muscular dystrophy and cystic fibrosis, both of which have significant patient populations with high unmet medical need and, we believe, are well suited for our CRISPR/Cas9 gene editing platform. We are working internally, as well as through third-party collaborations, to optimize viral and non-viral delivery technologies for use in these diseases.
- **Continue to Foster and Strategically Leverage Our Collaborations with Bayer and Vertex.**
  - Our collaborations will allow us to pursue additional indications by utilizing the extensive disease-area expertise and resources of our collaborators. Our joint venture with Bayer HealthCare LLC, or Bayer HealthCare, leverages their expertise in disease areas such as hemophilia and ophthalmology, as well as validated disease models and access to key opinion leaders. We are targeting cystic fibrosis with Vertex, which brings leading drug development capabilities and clinical relationships for this disease.
- **Advance our Leading Position in the Field of Gene Editing.**
  - We are continually investing in the enhancement of our CRISPR/Cas9 platform. Through our investments, we seek to optimize the various components, such as the Cas9 protein, gene correction and repair mechanisms and CRISPR/Cas9 delivery vehicles. We will invest both internally and through our existing and potential future collaborations to advance our technology.

Gene Editing Background

There are thousands of diseases caused by aberrant DNA sequences. Traditional small molecule and biologic therapies have had limited success in treating many of these diseases because they fail to address the underlying genetic causes. Newer approaches such as RNA therapeutics and viral gene therapy more directly target the genes related to disease, but each has clear limitations. RNA-based therapies, such as mRNA and siRNA, face challenges with repeat dosing and related toxicities. Non-integrating viral gene therapy platforms, such as adeno-associated virus, or AAV, may have limited durability because they do not permanently change the genome and have limited efficacy upon re-administration due to resulting immune responses. Integrating viral gene therapy platforms, such as lentivirus, permanently alter the genome but do so randomly, which leads to the potential for undesirable mutations. Additionally, cells may recognize the transduced genes as foreign and respond by reducing their expression, limiting their efficacy. Thus, while our understanding of genetic diseases has increased tremendously since the mapping of the human genome, our ability to treat them effectively has been limited.

We believe gene editing has the potential to enable a next generation of therapeutics and provide curative solutions to many genetic diseases through precise gene modification. The process of gene editing involves precisely altering DNA sequences within the genomes of cells using enzymes to cut the DNA at specific locations. After a cut is made, natural cellular processes repair the DNA to either silence or correct undesirable

sequences, potentially reversing their negative effects. Importantly, because the genome itself is modified in this process, the change is permanent in the patient.

Earlier generation gene-editing technologies, such as zinc finger nucleases (ZFNs), transcriptor-activator like effector nucleases (TALENs) and meganucleases, rely on engineered protein-DNA interactions. While these systems were an important first step to demonstrate the potential of gene editing, their development has been challenging in practice due to the complexity of engineering protein-DNA interactions. In contrast, CRISPR/Cas9 is guided by RNA-DNA interactions, which are more predictable and straightforward to engineer and apply.

The CRISPR/Cas9 Technology

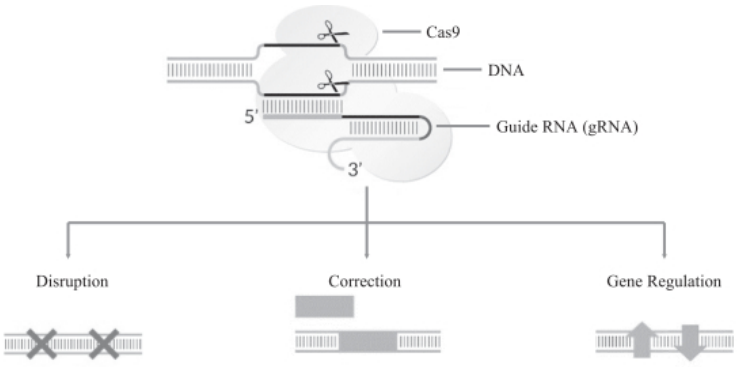
CRISPR/Cas9 evolved as a naturally occurring defense mechanism that protects bacteria against viral infections. Dr. Emmanuelle Charpentier and her collaborators elucidated this mechanism and developed ways to adapt and simplify it for use in gene editing. The CRISPR/Cas9 technology they described consists of three basic components: CRISPR-Associated protein 9, or Cas9, CRISPR RNA, or crRNA, and trans-activating CRISPR RNA, or tracrRNA. Cas9, in combination with these two RNA molecules, is described as “molecular scissors” that can make specific cuts in double-stranded DNA.

Dr. Emmanuelle Charpentier and her collaborators simplified the system for use in gene editing by combining the crRNA and tracrRNA into a single RNA molecule called a guide RNA. The guide RNA binds to Cas9 and can be programmed to direct the Cas9 enzyme to a specific DNA sequence based on Watson-Crick base pairing rules. The CRISPR/Cas9 technology can be used to make cuts in DNA at specific sites of targeted genes, providing a powerful tool for developing gene editing based therapeutics.

Once the DNA is cut, the cell uses naturally occurring DNA repair mechanisms to rejoin the cut ends. If a new DNA template with the correct sequence has been delivered to the cell prior to the time the DNA is cut, it will be incorporated, leading to a correction of the targeted gene, which we refer to as gene correction. Alternatively, if no DNA template is present, the cell will rejoin the two cut ends in a way that will likely lead to the disruption and inactivation of the gene, which we refer to as gene disruption.

CRISPR/Cas9 can also be adapted to regulate the activity of an existing gene without modifying the actual DNA sequence, which we refer to as gene regulation. This is accomplished using a catalytically inactive form of the Cas9 enzyme that can be directed to bind specific DNA sequences without cutting. By linking this inactive Cas9 to proteins that regulate gene function, the activity of specific genes can be either up or downregulated.

CRISPR/Cas9 gene editing

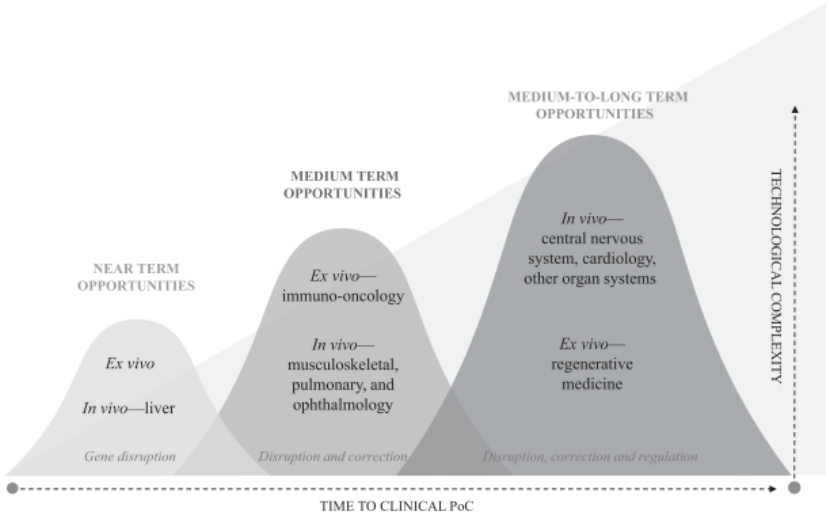


We believe that CRISPR/Cas9 is a versatile technology that can be used to either disrupt, correct or regulate genes. We intend to take advantage of the versatility and modularity of the CRISPR/Cas9 system to adapt and rapidly customize individual components for specific disease applications. Consequently, we believe that CRISPR/Cas9 may form the basis of a new class of therapeutics with the potential to treat a large number of both rare and common diseases.

Our Approach to CRISPR/Cas9 Portfolio Development

We have established a portfolio of programs by selecting disease targets based on a number of criteria, including high unmet medical need, advantages of CRISPR/Cas9 relative to alternative approaches, technical feasibility and the time required to advance the product candidate into and through clinical trials. For CRISPR/Cas9-based therapeutics, technical feasibility is primarily determined by the delivery modality and by the editing strategy required to treat the disease. The diagram below illustrates this spectrum of therapeutic applications, beginning with *ex vivo* delivery and gene disruption, progressing to *in vivo* organ systems and more sophisticated gene regulation strategies.

Strategic Progression of Our CRISPR/Cas9-Based Therapeutic Applications



We have initiated programs in three primary areas: (i) *ex vivo* programs involving gene editing of hematopoietic cells, (ii) *in vivo* programs targeting the liver and (iii) additional *in vivo* programs targeting other organ systems such as muscle and lung. By focusing our most advanced programs in *ex vivo* applications we believe we can mitigate technical and clinical risk, while also developing *in vivo* programs in parallel to fully realize the potential of our platform.

Strategic Partnerships and Collaborations

We intend to develop CRISPR/Cas9-based therapeutics both independently and in collaboration with current and potential future corporate partners. We have established collaborations with Bayer and Vertex which will provide over $400 million, subject to certain conditions, inclusive of estimated spending on funded

programs, which will be used to advance the programs included in these partnerships. These significant commitments will allow us to broaden our development portfolio, as well as invest in technology enhancements and delivery technologies. As part of these collaborations, Bayer and Vertex made equity investments of $35 million and $30 million, respectively, which we believe strengthen their commitments to the growth of our company. We believe that the resources committed by Bayer and Vertex illustrate the potential of our CRISPR/Cas9 gene editing technology.

Under our agreement with Bayer HealthCare, we established Casebia Therapeutics LLP, or Casebia, a joint venture in which we and Bayer HealthCare are equal owners. We and Bayer intend for Casebia to largely focus on more challenging *in vivo* therapeutic areas in larger patient populations, and to invest resources in optimizing the platform and delivery technologies for *in vivo* delivery. Through our agreement, we will have access to technology enhancements developed or obtained by Casebia for the benefit of our other wholly owned programs.

Our agreement with Vertex is a two-part collaboration. We have retained co-development and co-commercialization rights for the hemoglobinopathies program. We have also granted Vertex an option to license certain programs, with the potential to receive milestone payments and royalties.

Our Pipeline

The following table summarizes the current status of our product development pipeline:

Program	Editing approach	Research	IND enabling	Ph I/II	Partner	Structure
Ex vivo **: Hematopoietic**						
Beta-thalassemia	Disruption				VERTEX	Collaboration
Sickle cell disease (SCD)	Disruption				VERTEX	Collaboration
Hurler syndrome	Correction					Wholly-owned
Severe combined immunodeficiency (SCID)	Correction				BAYER	Joint venture
Immuno-oncology	Various					Wholly-owned
In vivo **: Liver**						
Glycogen storage disease Ia (GSDIa)	Correction					Wholly-owned
Hemophilia	Correction				BAYER	Joint venture
In vivo **: Other Organs**						
Duchenne muscular dystrophy (DMD)	Disruption					Wholly-owned
Cystic fibrosis (CF)	Correction				VERTEX	License option

Ex Vivo *Hematopoietic Program*

Background

We are primarily utilizing *ex vivo* approaches to treat diseases related to the hematopoietic system, which is the system of organs and tissues, such as bone marrow, the spleen and lymph nodes, involved in the production of blood. Today, many of the hematopoietic system diseases we are targeting are treated with allogeneic hematopoietic stem cell transplants, or allo-HSCT. In performing allo-HSCT, physicians replace a patient's

blood-forming cells that contain the defective gene with cells obtained from a different person that contain the normal gene. Unfortunately, not all patients are able to be matched with suitable donors. Patients who do undergo allo-HSCT face a high risk of complications such as infections related to immunosuppression, transplant rejection and graft-versus-host disease, where immune cells in the transplanted tissue (the graft) recognize the recipient (the host) as "foreign" and begin to attack the host's cells.

In contrast to allo-HSCT, our approach harvests stem cells directly from the patient, edits the defective gene *ex vivo*, and reintroduces those same cells back into the patient. We believe this *ex vivo* gene editing approach, which uses the patient's own cells, will provide better safety and efficacy than allo-HSCT.

Our Lead Programs—Hemoglobinopathies

Our lead programs aim to develop a single, potentially transformative CRISPR/Cas9-based therapy to treat both beta-thalassemia and sickle cell disease, or SCD. These diseases are caused by specific mutations of the beta globin gene. Beta globin is an essential component of hemoglobin, a protein in red blood cells that delivers oxygen and removes carbon dioxide throughout the body. A number of factors make these attractive lead indications, including: (i) high unmet medical need, (ii) compelling market potential, (iii) well-understood genetics and (iv) the ability to employ an *ex vivo* gene disruption strategy.

Beta-thalassemia

Overview

Beta-thalassemia is a blood disorder that is associated with a reduction in the production of hemoglobin. This disease is caused by mutations that give rise to the insufficient expression of the beta globin protein, which can lead to symptoms related to not only the lack of hemoglobin, but also as result of the buildup of unpaired alpha globin proteins in red blood cells. The severity of symptoms associated with beta-thalassemia varies depending on the levels of functional beta globin present in the blood cells. In the most severe cases, described as beta-thalassemia major, functional beta globin is either completely absent or reduced, resulting in severe anemia. While chronic blood transfusions can be effective at addressing symptoms, they often lead to iron overload, progressive heart and liver failure, and eventually death. Patients with mild forms of beta-thalassemia may experience some mild anemia or even be asymptomatic.

The total worldwide incidence of beta-thalassemia is estimated to be 60,000 births annually, the total prevalence in the United States and the European Union is estimated to be approximately 19,000 and there are over 200,000 people worldwide who are alive and registered as receiving treatment for the disease.

Limitations of current treatment options

The most common treatment for beta-thalassemia is chronic blood transfusions. Patients typically receive transfusions every two to four weeks and chronic administration of blood often leads to elevated levels of iron in the body and can cause organ damage over a relatively short period of time. Patients are often given iron chelators, or medicines to reduce iron levels in the blood, which are associated with their own significant toxicities. Low adherence to this burdensome regime often results in death by 30 years of age for patients with transfusion-dependent beta-thalassemia. The only potentially curative therapy for this disease is allo-HSCT, but few patients elect to have this procedure given its associated morbidity and mortality. In developing countries, where chronic transfusions are not available, most patients die in early childhood. We believe that our therapeutic approach could offer a potentially curative and safe treatment for this devastating disease.

Sickle Cell Disease

Overview

Sickle cell disease is an inherited disorder of red blood cells resulting from a mutation in the beta globin gene that causes abnormal red blood cell function. Under conditions of low oxygen concentration, the abnormal hemoglobin proteins aggregate within the red blood cells causing them to become sickled in shape and inflexible. These sickled cells obstruct blood vessels, restricting blood flow to organs, ultimately resulting in anemia, severe pain, infections, stroke, overall poor quality of life and early death.

The worldwide incidence of SCD is estimated to be 300,000 births annually and there are 20 million to 25 million people worldwide with the disease. In the United States, the total prevalence is estimated to be 100,000 individuals.

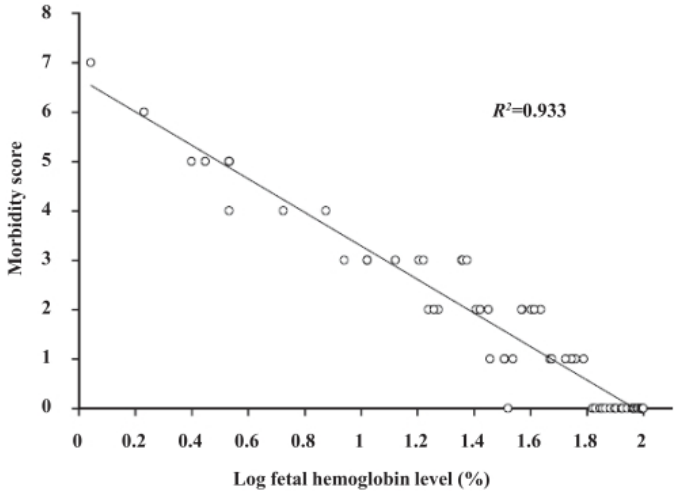
Limitations of current treatment options

As with beta-thalassemia, in regions where access to modern medical care is available, standard treatment for SCD involves chronic blood transfusions, which has the same associated risks of iron overload and toxicities associated with chelation therapy. Allo-HSCT is a second potential treatment option. While allo-HSCT provides the only potentially curative therapeutic path for SCD, it is often avoided given the significant risk of transplant-related morbidity and mortality in these patients.

Our Gene Editing Approach

Our therapeutic approach to treating beta-thalassemia and SCD employs gene editing to upregulate the expression of the gamma globin protein, a hemoglobin subunit that is commonly present only in newborn infants. Hemoglobin that contains gamma globin instead of beta globin protein is referred to as fetal hemoglobin, or HbF. In most individuals HbF disappears in infancy as gamma globin is replaced by beta globin through naturally occurring suppression of the gamma globin gene. The symptoms of beta-thalassemia and SCD typically do not manifest until several months after birth, when the levels of HbF have declined considerably. Some patients with beta-thalassemia or SCD have elevated levels of HbF that persist into adulthood, a condition known as hereditary persistence of fetal hemoglobin, or HPFH. Patients with HPFH are often asymptomatic, or experience much milder forms of disease. This protective HPFH condition has been shown to result from specific changes to the DNA in the cell, either in the region of the globin genes or in certain genetic regulatory elements that control the expression levels of the globin genes.

Relationship between level of HbF and morbidity in beta-thalassemia



We are using our CRISPR/Cas9 platform to mimic the same DNA sequence changes that occur naturally in HPFH patients. We plan to isolate patients' hematopoietic stem cells, which differentiate into red blood cells, treat these cells *ex vivo* with a CRISPR/Cas9 product candidate to edit their DNA to upregulate the expression of the gamma globin protein and reintroduce the edited cells back into the patients. We believe that the genetically modified stem cells will give rise to red blood cells that contain HbF and significantly reduce the severity of the symptoms associated with these two diseases.

An alternative CRISPR/Cas9 approach to treating hemoglobinopathies would be to correct the mutated beta globin gene. We have chosen the HbF upregulation strategy as our initial approach given the relative technical simplicity of the gene deletion strategy involved, ability of this strategy to counteract a wide variety of different beta globin mutations, and the absence of symptoms in patients with high HbF levels.

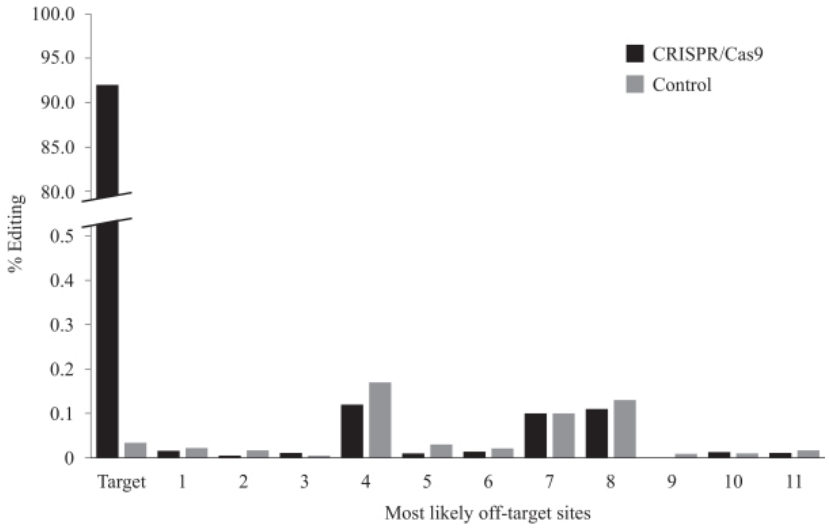
We believe our CRISPR/Cas9 gene editing strategy may have significant advantages over other gene therapies in development for the treatment of hemoglobinopathies. For example, lentivirus-based treatments involve a random integration of one or more copies of the globin gene throughout the genome. The expression levels of the newly introduced gene can vary depending on the exact location of the DNA in the genome, leading to inconsistent and variable levels of expression. In addition, with each random integration, a mutation may be created, which may have an associated safety concern, including the potential to cause cancer.

Preclinical Data

We are progressing toward initiating clinical trials for our hemoglobinopathy programs. The first step in this process involves selecting the specific gene editing strategy and RNA guides we will use in our product candidates. We are applying our high-throughput target evaluation process to test a number of these approaches, and ultimately select RNA guides with the highest editing rate of the globin genes and the greatest effect on HbF expression. Using our high-throughput guide screening platform, we have been able to identify guide RNAs that allow editing of hematopoietic stem cells at specific locations in the genome with greater than 90% efficiency.

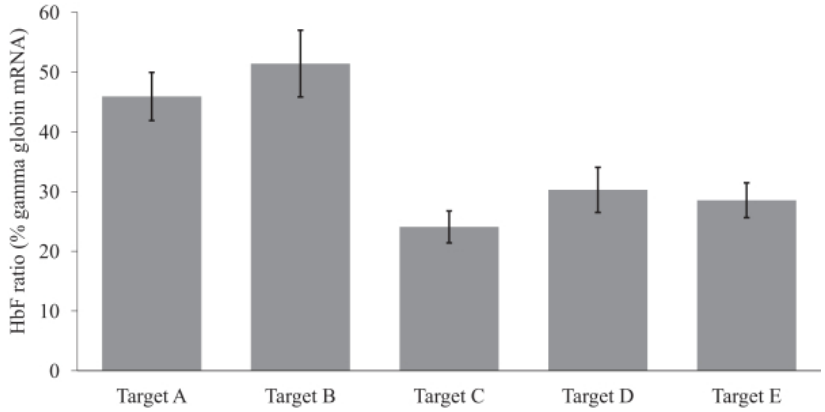
In addition to selecting guide RNAs with the highest cutting activity, we also screen our guide RNAs for off-target effects, or the introduction of cuts in DNA at locations other than the target sequence. To do this, we use bioinformatics to predict the most likely sites of off-target cuts, then test for cuts at these locations. The example guide RNA analysis shown below illustrates that we are able to identify guide RNAs that cut very efficiently at the target sites but show no off-target activity above control levels, even at sites where off-target activity is most likely to occur. We also test our lead candidates for any unlikely off-target effects using genome sequencing before advancing them for use as therapeutics.

Example guide RNA analysis



There are multiple naturally occurring genetic variants that lead to HPFH and which could form the basis of our product candidate. We have used CRISPR/Cas9 to recreate a number of these variants and tested their ability to upregulate HbF. The figure below shows the level of HbF upregulation, as measured by ratio of gamma globin to alpha globin mRNA, resulting from the recreation of five different genetic variants in hematopoietic stem cells using CRISPR/Cas9. Additionally, we have measured the level of gamma globin protein produced in these variants, to confirm the upregulation of HbF. We believe that at least two of these, named "Target A" and "Target B", may result in potentially curative levels of HbF if successfully introduced to patients with beta-thalassemia and SCD.

Ability of different gene targets to drive HbF production



Vertical lines in each bar show the mean ± standard error from multiple experiments.

To date, we have identified guide RNAs that perform the desired gene edits with very high efficiency, result in high levels of HbF production in cells and show no detectable evidence of off-target effects. As we continue to advance our hemoglobinopathies programs to the clinic, we are in the process of evaluating the ability of edited hematopoietic stem cells to engraft and persist in mice. These studies will also assess the ability of the edited cells to home the marrow and differentiate. Before entering clinical trials we will also perform longer-term studies in mice to ensure there are no undesirable consequences caused by the gene edited cells.

Hurler Syndrome

Hurler syndrome is a type of mucopolysaccharide disease caused by a defective IDUA gene. The IDUA gene is responsible for encoding alpha-L-iduronidase, an enzyme that breaks down large molecules called glycosaminoglycans, or GAGs, in the lysosomes of cells. A defective IDUA gene results in a lack of alpha-L-iduroindase which leads to an accumulation of GAGs and results in cellular dysfunction and severe clinical abnormalities. Patients with Hurler syndrome have a broad spectrum of clinical problems including skeletal abnormalities, enlarged livers and spleens, and severe intellectual disability due to a lack of this enzyme in the brain. Most patients experience a decline in intellectual development and often lose both vision and hearing as the disease progresses. Without treatment, the average age at death is five years, and nearly all patients die by the age of ten. The worldwide incidence of Hurler syndrome is approximately one in 100,000 births.

There are two common approaches to treating mucopolysaccharide diseases: enzyme replacement therapy and allo-HSCT. Enzyme replacement therapy, or ERT, does not adequately address the symptoms of Hurler

syndrome because it cannot cross the blood-brain barrier to address the severe neurologic symptoms associated with this disease. While allo-HSCT can be effective in treating the disease, it is associated with significant morbidity and mortality, and not all patients are able to find suitable donors. Even when a match is found, the delay between diagnosis and treatment often results in significant irreversible disease progression. Our approach is to introduce a functional copy of the IDUA gene into a patient's own hematopoietic cells using *ex vivo* CRISPR/Cas9 gene editing, before returning them to the patient. We believe that using a patient's own cells rather than those from a donor will eliminate a potentially lengthy search for an appropriate donor, allowing us to intervene at an earlier point and avoid the significant risks associated with allo-HSCT.

Severe Combined Immunodeficiency Disease

Severe combined immunodeficiency disease, or SCID, is a disease in which the patient's immune system is compromised and cannot fight off infections. These patients are identified early in life because they often suffer from recurrent severe respiratory infections, which can be life-threatening in the absence of a functioning immune system. There are multiple underlying causes of SCID, and in one particularly severe form, a gene called RAG1 is mutated. Mutations in RAG1, a gene that plays a critical role in the process of antibody generation, prevent normal development of the patient's immune system, resulting in an absence of B-cells, a type of white blood cell. The worldwide incidence of SCID is estimated to be one in 58,000 births, with the RAG1 mutation associated form accounting for approximately 15% of patients.

Currently, the only curative therapy for this potentially fatal disorder is allo-HSCT, which carries a high risk of complications. Gene therapies for SCID insert copies of a replacement gene randomly into the genome, potentially resulting in unwanted mutations. The risks associated with this type of gene therapy were underscored in a clinical trial for another variant of SCID in which five out of twenty patients developed leukemia. We believe that the precise correction of the RAG1 gene with CRISPR/Cas9 will bring benefit to these patients while minimizing the risk of leukemia associated with gene therapy. Considering corrected cells proliferate faster than non-corrected cells, we believe that a small number of corrected cells reintroduced into the patient could provide a therapeutic benefit and in time, compensate for the defective cells. With our *ex vivo* approach, we believe we can attain sufficient levels of correction to generate the desired therapeutic benefit. Our Casebia joint venture with Bayer HealthCare will lead development of our SCID program, and leverage Bayer HealthCare's expertise in hematologic disorders.

Future Development Opportunities

Engineered Cell Therapies For Cancer Immunotherapy

Over the past several years, interest in the oncology community has centered on immunotherapy, or treatments that harness a patient's own immune system to attack cancer cells. Engineered cell therapy is one such immunotherapy approach, in which immune system cells such as T-cells and natural killer, or NK, cells are genetically modified to enable them to recognize and attack tumor cells.

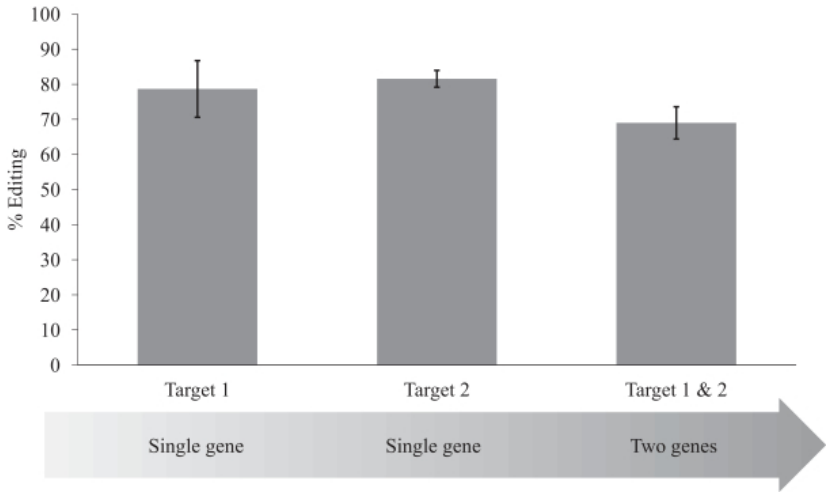
Engineered cell therapy has demonstrated encouraging clinical results and shown the potential to become an entirely new class of oncology therapeutics; however, realizing this full potential will require overcoming some key challenges. Most engineered cell therapies in development require unique products to be created for each patient treated, using conventional techniques. This approach to drug development is both inefficient and cost-prohibitive. Additionally, these versions of engineered cell therapies appear limited in their ability to treat solid tumors. These products have also demonstrated sub-optimal safety profiles, including overstimulation of the immune system, occasionally resulting in death.

We are utilizing CRISPR/Cas9 to create an "off-the-shelf" cell therapy product candidate, overcoming the inefficiency and cost of creating a unique product for each patient. In addition to delivering a gene for an engineered receptor to target the tumor, creating such a product would require simultaneous disruption of several genes in order to prevent off-target immune responses. We have initial results demonstrating that this type of

“multiplexed” editing can be achieved with high efficiency using CRISPR/Cas9. We are also using our platform to make other improvements such as disruption checkpoint inhibitor genes to overcome solid tumor suppression, and disrupting other genes to improve the safety profile.

We expect that the cellular engineering strategies that are ultimately successful in cancer immunotherapy will involve multiple genetic modifications, an application for which we believe CRISPR/Cas9 will play a central role. While other gene editing platforms could potentially be used for these purposes, CRISPR/Cas9 is particularly well-suited for multiplexed editing, which is the modification of multiple genes within a single cell. Current gene editing techniques that require different protein enzymes for each genetic modification may be limited in the number of edits they can make concurrently. In contrast, CRISPR/Cas9 can efficiently make multiple edits using a single Cas9 protein and multiple small guide RNA molecules. The example below demonstrates the ability of CRISPR/Cas9 technology to edit two different genes in human primary T-cells with an efficiency rate similar to that of editing just one gene.

Multiplexed editing of human primary T-cells using CRISPR/Cas9



Vertical lines in each bar show the mean ± standard error from multiple experiments.

In Vivo Programs

In parallel with our *ex vivo* programs, we are pursuing a number of *in vivo* indications which will involve delivery of CRISPR/Cas9 product candidates directly to tissues within the human body. Our initial *in vivo* applications will target the liver, leveraging well-established delivery technologies. We have also begun optimizing delivery systems to target other organ systems, including musculoskeletal and pulmonary.

Liver Diseases

We have selected liver diseases as our initial *in vivo* targets because delivery of nucleic acid therapies into the liver has been clinically established and validated delivery technologies are now available, including, but not

limited to, lipid nanoparticle based delivery vehicles, or LNPs, and AAVs. We believe this proof of concept reduces the challenges associated with delivering CRISPR/Cas9-based therapeutics *in vivo* to the liver.

Within the liver we are pursuing diseases that have well understood genetic linkages, and have begun preclinical development for multiple indications including glycogen storage disease Ia, or GSDIa, and hemophilia. In both of these indications, evidence suggests that correction of the mutant gene in only a small percentage of liver cells may have a significant therapeutic effect, which makes the gene correction strategy feasible in these indications.

Glycogen Storage Disease Ia

Overview

GSDIa, also known as Von Gierke disease, is an autosomal recessive inborn error of glucose metabolism caused by a mutation in the G6PC gene, which encodes the glucose-6-phosphatase protein, or G6Pase. In patients with GSDIa, the lack of G6Pase prevents the release of glucose from the liver, resulting in accumulation of a large chain form of glucose known as glycogen. The inability of patients with GSDIa to regulate glucose levels leads to hypoglycemia, or low blood glucose, and high levels of lactic acid when patients are not eating, requiring patients to adhere to burdensome dietary regimes. GSDIa patients also face long-term risks such as growth delay, neuropathy and kidney stones. Additionally, due to the accumulation of glycogen in the liver, 70% to 80% of patients over 25 years of age will develop hepatocellular adenomas, a type of non-cancerous growth in the liver, of which approximately 10% will progress to hepatocellular carcinoma, a potentially fatal liver cancer. There are approximately 1,000 new cases of GSDIa per year worldwide.

Limitations of Current Treatment Options

There are currently no disease-modifying treatment options for patients with GSDIa. Any disruption in carbohydrate delivery may lead to low blood sugar levels, which can cause life-threatening consequences including seizure, coma and death. To minimize the risk of acute complications, patients are required to adhere to highly burdensome, life long dietary regimens such as overnight administration of uncooked cornstarch or a slow-release carbohydrate product such as Glycosade. These regimens have a high rate of non-compliance, leading to increased risk of serious long-term complications.

Our Gene Editing Approach

We are developing a CRISPR/Cas9 product candidate to correct the mutation in GSDIa patients. Animal model experiments have demonstrated that the addition of functional copies of the G6PC gene is capable of correcting the deficiency of G6Pase protein in GSDIa and that as little as 3% of normal levels of G6Pase can restore the equilibrium of glucose and glycogen in the bloodstream and liver. Our approach is to correct the G6PC gene directly in its native location. We believe this direct gene correction will result in appropriate expression of the G6Pase protein. Other methods rely on adding copies of the gene through viral delivery methods, which we believe may lead to overexpression of the G6Pase protein and ineffective control of glucose levels.

Hemophilia

Overview

Hemophilia is an X-linked recessive genetic disease primarily present in male children. Our initial hemophilia program targets hemophilia B, which results from a deficiency in factor IX, an enzyme produced in the liver. Factor IX is part of the blood coagulation system, which enables blood to form clots in response to injury and bleeding. A lack of factor IX leads to an increased risk of bleeding, either spontaneously or in response to injury.

Patients with severe forms of the disease are first diagnosed at infancy, as witnessed through prolonged bleeding from simple medical procedures or through excessive bruising from simple falls. These patients have frequent spontaneous bleeding into joints and muscles, which can lead to edema, inflammation and debilitating

pain. Patients with mild forms of the disease typically present as normal, and diagnosis usually follows surgery or trauma. The worldwide prevalence of hemophilia B patients is estimated to be 28,000, including over 4,000 in the United States. About half of hemophilia B cases are classified as severe based on levels of factor IX activity that are less than 1% of normal.

Limitations of Current Treatment Options

The standard of care for symptomatic patients with hemophilia B involves enzyme replacement with recombinant factor IX. Exogenous factor IX protein is administered both as a prophylaxis and during acute bleeding episodes. While considered effective, factor IX replacement therapies are invasive, inconvenient and non-curative. Until recently, hemophilia B therapy required weekly intravenous injections or infusions. While administration frequency has improved in recent years, key drawbacks of protein therapy, including fluctuations in factor IX levels, remain a significant pitfall of enzyme replacement therapies.

Our Gene Editing Approach

We believe that hemophilia B symptoms can be dramatically reduced with only a moderate restoration in factor IX activity. It has been shown that patients with more than 5% of normal factor IX activity have milder forms of the disease and may not present symptoms in the absence of trauma or surgery. This observation implies that in patients with severe forms of the disease, restoration of factor IX activity to a level of 5% or more of normal may be clinically meaningful.

The correction of a mutant factor IX gene with CRISPR/Cas9 leverages endogenous regulation via correction of the gene at its native location within the genome. As a result, we believe it may represent a superior way to treat hemophilia B patients, relative to other gene therapy approaches that insert the correct gene at a random location in the genome. Our hemophilia program will be developed within the Casebia joint venture, leveraging Bayer's expertise in this disease area together with our gene editing expertise.

Other Organs

We intend to pursue select *in vivo* programs targeting diseases of other organ systems such as Duchenne muscular dystrophy, or DMD, and cystic fibrosis, which have significant patient populations with high unmet medical needs, and we believe are well suited for a CRISPR/Cas9 gene editing system. For cystic fibrosis, or CF, we are working with Vertex, a global leader with extensive disease area expertise. We are working internally as well as through third-party collaborations to optimize viral and non-viral delivery technologies to overcome the delivery challenges to these organ systems.

Duchenne Muscular Dystrophy

Overview

Duchenne muscular dystrophy is an X-linked recessive genetic disease caused by a mutation in the dystrophin gene, which results in a lack of the dystrophin protein, a protein that plays a key structural role in muscle fiber function. The absence of dystrophin in muscle cells leads to significant cell damage and ultimately causes muscle cell death and fibrosis. DMD is characterized by muscle degeneration, loss of mobility and premature death, and is among the most prevalent severe genetic diseases, occurring in one in 3,300 male births worldwide. There is also a related form of muscular dystrophy called Becker muscular dystrophy, or BMD, which is also caused by mutations in the dystrophin gene. However, unlike DMD, the mutations in BMD result in the loss of certain exons or regions of the gene, and can lead to an abnormal version of dystrophin that retains some function. As a result, BMD patients have milder symptoms than DMD patients.

There is currently one approved disease-modifying therapy in the United States for the treatment of DMD in patients who have a confirmed mutation of the dystrophin gene amenable to exon 51 skipping, which affects

about 13% of the population with DMD. There is currently no approved disease-modifying therapies in the United States for the treatment of BMD. Our gene-based therapeutic approach in development to treat DMD involves the use of oligonucleotides to promote exon skipping over the mutations that otherwise would result in truncated dystrophin synthesis. While exon skipping has demonstrated promising results in limited settings, larger clinical trials of this approach have suggested only modest efficacy. In addition, delivering sufficient levels of oligonucleotides requires repeated administration and presents challenges to treating DMD.

Our Gene Editing Approach

We are pursuing multiple approaches to developing therapies for DMD. Our first approach is to deliver CRISPR/Cas9 directly to muscle cells in patients to delete the defective exons in the dystrophin gene. The goal of this approach is to allow the gene to regain some functional capacity and produce enough dystrophin protein to diminish the more severe symptoms of DMD to resemble the milder form of the disease known as BMD. We believe that currently available technology is capable of delivering the CRISPR/Cas9 into muscle cells, and together with the relatively high efficiency of exon deletion using the CRISPR/Cas9 system, we will be able to move this program into clinical testing.

We also plan to develop an *ex vivo* cell therapy product candidate for DMD. We will derive stem cells from patient tissues and modify them *ex vivo* using our CRISPR/Cas9 technology to correct the disease causing mutations. These corrected stem cells will then be differentiated into muscle precursor cells and reintroduced into patient tissues. Once administered to the patients, we believe that the cells will divide and provide the patient with properly functioning muscle fibers with corrected copies of the dystrophin gene.

In parallel, we are performing *in vitro* experiments to test the principle of dystrophin gene correction which could potentially be curative. Prior studies in mice and humans have indicated that dystrophin levels as low as 4 to 15% of normal are sufficient to ameliorate symptoms, suggesting that even a partial restoration of dystrophin levels would be therapeutically beneficial.

Cystic Fibrosis

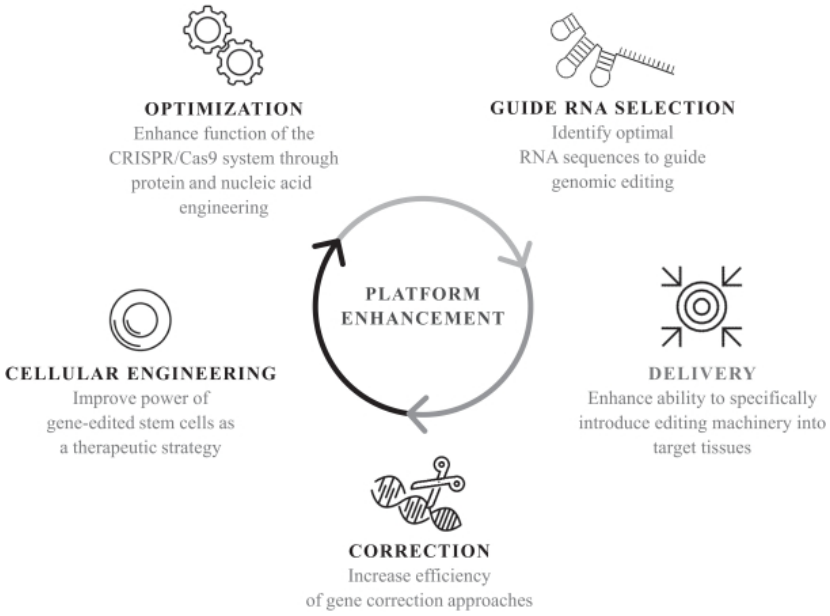
Cystic fibrosis is a progressive disease caused by mutations in the cystic fibrosis transmembrane regulator, or CFTR, gene resulting in the loss or reduced function of the CFTR protein. Although there are several different mutations associated with CF, approximately 70% of CF patients have the same mutation at codon 508 of the CFTR gene. Patients with CF develop thick mucus in vital organs, particularly in the lungs, pancreas and gastrointestinal tract. As a result, CF patients experience chronic severe respiratory infections, chronic lung inflammation, poor absorption of nutrients, progressive respiratory failure and early mortality.

CF is an orphan disease that affects an estimated 70,000 to 100,000 patients worldwide, with a majority in the United States and Europe. The median age of death from CF in the United States in 2014 was 29 years, with most deaths resulting from respiratory failure. CF patients require lifelong treatment with multiple daily medications and hours of self-care. They often require frequent hospitalizations and sometimes even lung transplantation, which can prolong survival but is not curative.

Studies have shown that as little as 10% of normal CFTR function can ameliorate disease symptoms. Our approach is focused on using our CRISPR/Cas9 technology to correct the mutation at codon 508. Together with our collaboration partner Vertex, we believe that we will be able to deliver CRISPR/Cas9 to the lung and correct this mutation sufficiently to improve symptoms in patients with CF.

Further Unlocking the Potential of Our CRISPR/Cas9 Platform

We are working to optimize our CRISPR/Cas9 platform. Our key areas of focus are described below.



Optimization of the Cas9 Protein

The Cas9 nucleases found in nature are highly efficient and specific. We believe that for many gene-editing applications, the naturally occurring Cas9 variants have all the properties required to support an effective therapeutic. However, we also see potential in certain disease areas and organ systems where modified versions of Cas9 may be more effective, and we are working internally and through our external collaborations to develop these.

Our research and development efforts seek to enhance a number of characteristics of Cas9, including size, specificity, immunogenecity and ability to support different types of editing strategies. We believe that the process of optimizing these different parameters may yield a number of effective Cas9 versions with different properties, each of which may be best suited to a certain disease area or type of genetic editing.

Guide RNA Selection

Selecting the sequence for guide RNAs is a critical step in the process of designing our product candidates. Once we have chosen a gene editing strategy, we seek to identify guide RNAs that will perform the desired edit with high efficiency and with extremely low off-target cutting. While computational models can predict efficiency and off-target effects with reasonable accuracy, we believe that a combination of computation and experimental approaches is necessary to reliably select the best possible guide RNAs.

We are building a guide RNA selection process that combines bioinformatics and experimental assays to enable the screening of over 10,000 guide RNAs in each experiment. This process starts with proprietary bioinformatics algorithms that select a large pool of guide RNAs that are predicted to have desired properties. These guides are then tested for target site cutting efficiency using a high-throughput screening platform in a model cell line. The most efficient guides are then put through two screening processes for possible off-target effects. First, bioinformatics algorithms are used to identify the 10 to 20 sites in the genome that are most likely to show off-target effects, and these sites are examined through high-throughput assays for empirical off-target cutting. Second, whole genome sequencing is performed to identify any potential off-target cutting, even at unpredicted locations. Finally, a small subset of guides with the highest efficiency and lowest off-target potential are tested in the cell type of therapeutic interest before choosing a lead guide or guides for our program.

Delivery

Delivery of CRISPR/Cas9 into cells is a critical step to ensure that the therapeutic will be effective. We can deliver our Cas9 in the form of protein, DNA or RNA, allowing us to tailor the delivery format to the target tissue. For our *ex vivo* programs, we are using both protein and mRNA forms of Cas9 delivered via electroporation, which is the process of using a pulse of electricity to briefly open the pores of the cell membrane. For *in vivo* delivery to cells and organs in the patient we are evaluating and testing a variety of technologies that include LNPs and AAVs, as well as other delivery methods, before selecting the specific versions for use in our product candidates. We have not yet selected an LNP or AAV technology for in-licensing opportunities. In addition, we are collaborating externally to develop next-generation delivery technologies that will allow us to access organ systems that are less accessible today. Some of this activity may be done through our Casebia joint venture with Bayer HealthCare which provides us access to supporting technologies such as delivery vehicles.

Correction

While gene correction is achievable today using CRISPR/Cas9, it is more difficult and has lower efficacy than the more straightforward gene disruption strategy. Our initial gene correction programs target diseases in which therapeutic efficacy can be achieved through correction of only a small percentage of cells, while other potential indications may require correction of a significantly higher percentage of cells. We are working with our collaborators to increase the efficiency of gene correction in order to facilitate the potential treatment of these additional indications.

A central focus of our development efforts is to optimize the correction rates in cell types where rates of correction are typically low. Some of this optimization is being done internally, to test the influence of different parameters of the CRISPR/Cas9 system on correction efficiency. In addition, we are advised by Dr. Stephen Elledge, Professor of Genetics at Harvard Medical School, who is an expert in DNA damage and repair, to explore ways to optimize the cellular processes involved in the correction process. We are also collaborating more broadly with leaders in the DNA repair field, to explore other approaches to optimize correction rates.

Cellular Engineering

Many *ex vivo* applications of our technology use a strategy of editing stem cells *ex vivo* which, when returned to the patient, differentiate into a variety of different cell types. For certain stem cell types, especially hematopoietic cells, there are well-established procedures to support this strategy. For others, these procedures are more nascent and require further development. A critical focus for us is to improve the efficacy, efficiency and safety of the *ex vivo* cell collection, manipulation and administration process for a variety of stem cell types. We are evaluating technologies to improve mobilization of a patient's stem cells, to maintain viability of the harvested cells, and to improve the ability of these cells to engraft into a patient's body. Both in our own laboratories and through our academic partnerships, we intend to perform additional research to optimize these parameters for each organ system.

Intellectual Property

We strive to protect and enhance the proprietary technologies that we believe are important to our business by seeking patents to cover our platform technology, which consists of the in-licensed intellectual property of Dr. Emmanuelle Charpentier described below, including compositions of matter and their therapeutic uses. We also rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection. Our success will depend significantly on our ability to obtain and maintain patent and other proprietary protection for our technology, our ability to defend and enforce our intellectual property rights and our ability to operate without infringing any valid and enforceable patents and proprietary rights of third parties.

In-Licensed Intellectual Property

In April 2014, we exclusively licensed certain of Dr. Emmanuelle Charpentier's rights to a family of patent applications relating to compositions of matter, including additional CRISPR/TRACR/Cas9 complexes, and methods of use, including their use in targeting or cutting DNA. Our license from Dr. Charpentier is limited to therapeutic products such as pharmaceuticals and biologics and any associated companion diagnostics, for the treatment or prevention of human diseases, disorders, or conditions. For further information about our license from Dr. Charpentier, please see "Business – CRISPR License with Dr. Emmanuelle Charpentier."

This family of patent applications includes a granted patent in the United Kingdom and pending patent applications in the United States, Europe, Canada, Mexico, Australia and other selected countries in Central America, South America, Asia and Africa. The granted patent in the United Kingdom and any other patents that may ultimately issue in this patent family are expected to expire in 2033, not including any applicable extensions.

In addition to Dr. Emmanuelle Charpentier, this family of patent applications has named inventors who assigned their rights either to the Regents of the University of California, or California, or the University of Vienna, or Vienna. California's rights are subject to certain overriding obligations to the sponsors of its research, including the Howard Hughes Medical Institute and the U.S. Government. Caribou Biosciences, or Caribou, has reported that it has an exclusive license to patent rights from California and Vienna, subject to a retained right to allow non-profit entities to use the inventions for research and educational purposes. Intellia Therapeutics has reported that it has an exclusive license to such rights from Caribou in certain fields. For further information regarding the effects of joint ownership in the United States and abroad, please see "Risk Factors – Certain of our in-licensed intellectual property is jointly owned, and our license is from only one of the joint owners, materially limiting our rights in the United States and abroad."

In January 2016, the U.S. Patent and Trademark Office, or USPTO, declared an interference between one of the pending U.S. patent applications in this family and twelve issued U.S. patents owned jointly by the Broad Institute and Massachusetts Institute of Technology and, in some instances, the President and Fellows of Harvard College, which we refer to individually and collectively as Broad. The interference was redeclared in March 2016 to add a U.S. patent application owned by Broad. An interference is a proceeding conducted at the USPTO by the Patent Trial and Appeal Board, or PTAB, to determine which party was the first to invent subject matter claimed by at least two parties. There are currently two parties to this interference. The USPTO designated Dr. Emmanuelle Charpentier, California and Vienna collectively as "Senior Party" and designated Broad as "Junior Party." Following motions by the parties and other procedural matters, the PTAB could conclude that the contested subject matter is not patentable to the Senior Party, which in this case could preclude Senior Party's U.S. patent application from issuing as a patent; that the contested subject matter is not patentable to the Junior Party, which in this case could result in the cancellation of some or all of the Junior Party's claims; that the contested subject matter is not patentable to either party; or that the interference should be dismissed. Either party can appeal an adverse decision to the U.S. Court of Appeals for the Federal Circuit. Pursuant to the terms of the license agreement with Dr. Charpentier, we are responsible for covering or reimbursing Dr. Charpentier's patent prosecution, defense and related costs associated with our in-licensed technology. For further information regarding risks regarding the interference and patent rights held by third parties, please see "Risk Factors—Risks Related to Our Intellectual Property."

CRISPR-Owned Intellectual Property

We also own over 80 families of patent applications relating to our platform technology or its therapeutic applications. These patent applications are currently pending in the United States and in some cases in foreign countries, and we may elect to pursue additional related applications in foreign countries. Any patents that ultimately issue from these patent applications may begin to expire in 2034.

Patent Assignment Agreement

In November 2014, we entered into a patent assignment agreement with Dr. Emmanuelle Charpentier, Dr. Ines Fonfara and Vienna, or the Patent Assignment Agreement. Under the Patent Assignment Agreement, Dr. Charpentier, Dr. Fonfara and Vienna assigned to us all rights to a family of patent applications relating to certain compositions of matter, including additional CRISPR/TRACR/Cas9 complexes, and methods of use, including their use in targeting or cutting DNA.

As consideration for the patent rights assigned to us, we agreed to pay an upfront payment, milestone payments beginning with the filing of a U.S. Investigational New Drug application or its equivalent in a foreign country, a minimum annual royalty, a low single-digit royalty on net sales of products whose manufacture, use, sale, or importation is covered by the assigned patent rights, and a low single-digit percentage of licensing revenues.

We are obliged to use commercially reasonable efforts to obtain regulatory approval to market a product whose manufacture, use, sale, or importation is covered by the assigned patent rights, including but not limited to an obligation to use commercially reasonable efforts to file a U.S. Investigational New Drug application (or its equivalent in a major market country) by November 2021.

License Agreements

CRISPR License With Dr. Emmanuelle Charpentier

In April 2014, we entered into a license agreement, or the Charpentier License Agreement, with Dr. Emmanuelle Charpentier, one of our co-founders, pursuant to which we received an exclusive license under Dr. Charpentier's joint ownership interest a family of patent applications relating to CRISPR/TRACR/Cas9 complexes and their use in targeting or cutting DNA, which we refer to as the Patent Rights, to research, develop and commercialize therapeutic products such as pharmaceuticals or biological preparations, and any associated companion diagnostics, for the treatment or prevention of human diseases, disorders, or conditions, other than hemoglobinopathies, which we refer to as the CRISPR Field. The license is exclusive, even as to Dr. Charpentier, except that she retains a non-transferable right to use the technology for her own research purposes and in research collaborations with academic and non-profit partners. The exclusive license is granted only under Dr. Charpentier's interest in the patent applications and the exclusivity is not granted under any other joint owner's interest. Additionally, the Charpentier License granted us an exclusive, worldwide, royalty-free sublicense, including the right to sublicense, to research, develop, produce, commercialize and sell therapeutic products relating to the CRISPR Field which incorporate any intellectual property that TRACR Hematology Ltd., our majority-owned subsidiary, or TRACR, develops under its license with Dr. Charpentier. In turn, we granted to Dr. Charpentier an exclusive license with the obligation to sublicense to TRACR any intellectual property we develop under the license with Dr. Charpentier for treatment and prevention of hemoglobinopathy in humans, including, without limitation, sickle cell disease and thalassemia.

Under the terms of the Charpentier License Agreement, as consideration for the license, Dr. Emmanuelle Charpentier received a technology transfer fee, an immaterial annual maintenance fee, immaterial milestone payments that will be due after the initiation of clinical trials, a low single digit percentage royalty on net sales of licensed products, and a low single digit percentage royalties of sublicensing revenue. We are obligated to use commercially reasonable efforts to obtain regulatory approval to market a licensed therapeutic product. CRISPR must use commercially reasonable efforts to file a U.S. Investigational New Drug application (or its equivalent in a major market country for a therapeutic product in the CRISPR field) by April 2021. In addition, CRISPR must file a U.S. Investigational New Drug application (or its equivalent in a major market country) for a therapeutic product in the CRISPR field by April 2024.

Unless terminated earlier, the term of the Charpentier License Agreement will expire on a country-by-country basis, upon the expiration of the last to expire valid claim of the Patent Rights in such country. We have the right to terminate the agreement at will upon 60 days' written notice to Dr. Emmanuelle Charpentier. We and Dr. Charpentier may terminate the agreement upon 90 days' notice in the event of a material breach by the other party, which is not cured during the 90 day notice period. Dr. Charpentier may terminate the license agreement immediately if we challenge the enforceability, validity, or scope of any Patent Rights.

TRACR License With Dr. Emmanuelle Charpentier

In April 2014, concurrently with our license agreement with Dr. Emmanuelle Charpentier, TRACR Hematology Ltd., our majority owned subsidiary, entered into a license agreement, or the TRACR License Agreement, with Dr. Charpentier, a minority shareholder of TRACR, under the Patent Rights. Pursuant to the TRACR License Agreement, TRACR was granted an exclusive, worldwide, royalty-bearing license, including the right to sublicense, to research, develop, produce, commercialize and sell therapeutic and diagnostic products for the treatment and prevention of hemoglobinopathy in humans, including sickle cell disease and thalassemia, or the TRACR Field. TRACR also received a non-exclusive, worldwide, royalty-free license, including the right to sublicense, to carry out internal pharmaceutical research for therapeutic products outside of the TRACR Field and an exclusive, worldwide, royalty-free sublicense, including the right to sublicense, to research, develop, produce, commercialize and sell therapeutic products relating to the TRACR Field which incorporate any intellectual property that CRISPR develops under its license with Dr. Charpentier. In turn, TRACR granted to Dr. Charpentier an exclusive license to sublicense to CRISPR any intellectual property that TRACR develops under the license with Dr. Charpentier for use in the CRISPR Field.

TRACR is obligated to use commercially reasonable efforts to research, develop, and commercialize at least one therapeutic product for the prevention or treatment of human disease under the license agreement. TRACR must use commercially reasonable efforts to file a U.S. Investigational New Drug application (or its equivalent in a major market country) for a therapeutic product in the TRACR field by April 2021. In addition, TRACR must file a U.S. Investigational New Drug application (or its equivalent in a major market country) for a therapeutic product in the TRACR field by April 2024. Tracr is solely responsible for all clinical, regulatory and development costs.

Under the TRACR License Agreement, Dr. Emmanuelle Charpentier is entitled to receive immaterial clinical and regulatory milestone payments per product that TRACR commercializes. TRACR is also required to pay Dr. Charpentier low single digit percentage royalties on the net sales of any approved therapeutic or diagnostic products, made by it, its affiliates, or its sublicensees and low single-digit percentage royalties on sublicensing revenue.

Unless terminated earlier, the term of the license agreement will expire on a country-by-country basis, upon the expiration of the last to expire valid claim of the Patent Rights in such country. TRACR has the right to terminate the agreement at will upon 60 days' written notice to Dr. Emmanuelle Charpentier. TRACR and Dr. Charpentier may terminate the agreement upon 90 days' notice in the event of a material breach by the other party, which is not cured during the 90 day notice period. Dr. Charpentier may terminate the license agreement immediately if TRACR challenges the enforceability, validity, or scope of any Patent Right.

Bayer Joint Venture

In December 2015, we entered into a Joint Venture Agreement, or the JV Agreement, with Bayer HealthCare LLC, or Bayer HealthCare, to create Casebia Therapeutics LLP, or Casebia, to discover, develop and commercialize new therapeutics for genetically linked diseases, including blood disorders, blindness and heart disease. At the closing of the transactions contemplated by the JV Agreement in March, 2016, or the Closing, we contributed $0.1 million to Casebia and we and certain of our affiliates entered into an intellectual property contribution agreement with Casebia, or the CRISPR IP Contribution Agreement, as discussed below,

exclusively licensing our CRISPR/Cas technology to Casebia for the purpose of developing and commercializing therapeutic products in certain specified fields, or the Casebia Fields. Bayer HealthCare contributed an initial amount of $45 million at the Closing to Casebia and is committed to contribute up to an additional $255 million in additional funds over time to fund the operations of Casebia, subject to the conditions and procedures discussed below. We and Bayer HealthCare each hold a 50%, non-transferable interest in Casebia. Casebia will sublease a portion of our Cambridge office for its initial operations.

Casebia's initial focus will be within the areas of hematology, ophthalmology and cardiology, in addition to select indications related to other sensory organs, metabolic diseases and autoimmune diseases. Within these areas of focus, we and Bayer HealthCare each have exclusive rights to specified disease indications, the CRISPR Field and Bayer Field, respectively, as discussed below.

Governance

Axel Bouchon, the head of LifeScience Center of Bayer AG, is serving as the initial chief executive officer, or CEO, of Casebia. Casebia is generally governed by a management board, or the Management Board, which is initially comprised of four voting members, two of which are designated by us and two of which are designated by Bayer. In addition, once a CEO unaffiliated with either us or Bayer HealthCare is appointed, he or she will be appointed to the Management Board as a non-voting member. We have initially designated Drs. Novak and Lundberg to serve as our designees to the Management Board. Dr. Novak is also serving as the chairman of the Management Board. Decisions of the Management Board are generally made by majority vote, with each member having one vote. Certain matters require the consent of Bayer HealthCare and us.

Budget And Funding

The JV Agreement sets forth the initial 24-month budget for Casebia, which will be revised by the Management Board on a yearly basis for the following 24 months. Bayer HealthCare, subject to certain conditions, is solely responsible for providing Casebia with the necessary additional funding as determined by the Management Board until the earlier of (i) its aggregate additional commitment amount of $255 million is fully funded, at which point all additional financing must be approved by the Management Board or (ii) the termination of the JV Agreement in accordance with its terms. Any additional funding beyond the amounts initially committed by Bayer HealthCare in the JV Agreement up to the $300 million aggregate commitment amount, whether for purposes of an acquisition or otherwise, will not affect or dilute our 50% interest in Casebia.

Non-Competition

During the term of the JV Agreement, neither we nor Bayer HealthCare, nor any of our respective affiliates, may develop, commercialize or otherwise exploit any competing product utilizing the CRISPR/Cas technology in any of the Casebia Fields unless, in the case of CRISPR or one of our affiliates, a target is the subject of a pre-existing license or an approved third party agreement, or certain other excluded targets. In addition, in the event either we, Bayer HealthCare or a third party license a product candidate from Casebia pursuant to the Option Agreement discussed below, the non-licensing party or parties to the JV Agreement will be prohibited from developing, commercializing or otherwise exploiting any product utilizing CRISPR/Cas technology to target the same target as that of the licensed product candidate in any of the fields covered by such Option Agreement, so long as the licensing party is clinically developing, commercializing or otherwise exploiting such licensed product candidate.

Furthermore, upon a termination by either party for specified breaches of the other party, the defaulting party will be prohibited from utilizing the CRISPR/Cas technology to develop, commercialize or otherwise exploit product candidates in the field of the terminating party which would be competitive with the terminating party, for a period of two years following such termination.

Termination

The JV Agreement can be terminated by Bayer HealthCare and us upon mutual written consent. Either party may terminate the JV Agreement in the event of specified breaches by the other party or in the event the other party becomes subject to specified bankruptcy, winding up or similar circumstances. Either party may also terminate upon a change of control of the other party, as defined in the JV Agreement. Bayer HealthCare also has the right to terminate in the event (i) we are not able to maintain the intellectual property rights licensed to Casebia pursuant to the CRISPR IP Contribution Agreement or (ii) we have not achieved preclinical proof of concept with a CRISPR/Cas9 product candidate in a specified period of time. The JV Agreement may also be terminated by either party if, subsequent to the time that Bayer HealthCare has funded its entire $300 million commitment, the Management Board is unable to approve and obtain sufficient funding, within the time specified in the JV Agreement, to continue Casebia's operations for the next 18 months. Bayer HealthCare may also terminate the JV Agreement during the 30-day period following March 16, 2017 if we have not obtained specified intellectual property rights relating to our CRISPR/Cas9 technology outside of the United States.

Subject to certain exceptions, in the event of a termination, all Casebia owned patents, know-how and technology will be jointly owned by us and Bayer HealthCare, with the right to sublicense. Upon termination, subject to certain exceptions, Bayer HealthCare will receive an exclusive license to Casebia CRISPR/Cas technology for all non-human therapeutic uses in the Bayer Field and a non-exclusive license for human therapeutic uses. Upon such termination, we will receive an exclusive license to Casebia CRISPR/Cas technology in human therapeutic areas, other than in the Bayer Field, and a non-exclusive license for human therapeutic uses in the Bayer Field. Upon any termination, all rights licensed to Casebia pursuant to the CRISPR IP Contribution Agreement will terminate, except for any rights licensed to third parties or to a party who has exercised an option pursuant to the Option Agreement described below.

IP Contribution Agreement With Casebia

As part of our contribution to Casebia, in March 2016, we and certain of our affiliates entered into the CRISPR IP Contribution Agreement with Casebia. Pursuant to the CRISPR IP Contribution Agreement, we and certain of our affiliated entities granted Casebia an exclusive, worldwide, fully paid-up, royalty-free license, including the right to sublicense, to the use of our CRISPR/Cas technology to research, develop, produce, commercialize and sell products in the Casebia Fields. As partial consideration for the license, Casebia is required to pay us an aggregate amount of $35 million for a technology access fee, consisting of an upfront payment of $20 million, which was paid at the closing of the JV Agreement in March 2016, and another payment of $15 million when we obtain specified intellectual property rights relating to our CRISPR/Cas9 technology outside of the United States. The CRISPR IP Contribution Agreement also contains license grants from Casebia to us to various forms of intellectual property developed or in-licensed by Casebia. The CRISPR IP Contribution Agreement will terminate simultaneously with the termination of the JV Agreement, subject to survival of certain licenses granted during the term, including licenses granted pursuant to an exercise of an option pursuant to the Option Agreement.

Option Agreement With Bayer

In connection with the Closing, in March 2016, we, Bayer HealthCare and Casebia entered into an Option Agreement. Pursuant to the Option Agreement, in the event the FDA accepts an IND submitted by Casebia for any product candidate it is developing, both we and Bayer HealthCare have the right to submit an offer to enter into a license with Casebia for the exclusive right to develop, manufacture and commercialize the product candidate in certain Casebia Fields. In addition, Casebia is allowed to receive and consider unsolicited third-party offers, and both we and Bayer HealthCare can require Casebia to seek third-party offers for the applicable product candidate. The Option Agreement sets forth the procedures the Management Board will follow when considering and voting on any offers as well as the considerations on how to value any offer.

Collaboration Agreement With Vertex

On October 26, 2015, we entered into a Strategic Collaboration, Option and License Agreement, or the Collaboration Agreement, with Vertex Pharmaceuticals, Incorporated and Vertex Pharmaceuticals (Europe) Limited, together, Vertex. Pursuant to the Collaboration Agreement, we agreed to provide technology and options to obtain licenses relating to our CRISPR/Cas technology to Vertex in exchange for a $75 million upfront payment. In connection with the Collaboration Agreement, Vertex also made a $30 million equity investment in us.

Under the Collaboration Agreement, Vertex has the option to exclusively license treatments for up to six collaboration targets that emerge from the four-year research collaboration under certain of our platform and background intellectual property to develop, manufacture, commercialize, sell and use therapeutics directed to each such collaboration target. For any non-hemoglobinopathies targets in-licensed for development, Vertex will pay future development, regulatory and sales milestones of up to $420 million per target, as well as royalty payments in the single digits to low teens on future sales of a commercialized product candidate. The milestone and royalty payments are each subject to reduction under certain specified conditions set forth in the Collaboration Agreement. For these therapies, Vertex is solely responsible for all research, development, manufacturing and global commercialization activities.

However, specifically for hemoglobinopathies targets, if Vertex exercises one or more of its six options on a hemoglobinopathy target, including targets for sickle cell disease, we and Vertex will equally share all development costs and sales expenses. If a hemoglobinopathy target is successfully developed, we would be the lead party responsible for commercialization efforts in the United States and Vertex would be the lead party responsible for commercialization efforts outside the United States. The profits from the sales of any hemoglobinopathies products will be equally shared by Vertex and us.

The initial focus of the collaboration will be to use CRISPR/Cas9 technology to discover and develop gene-based treatments for hemoglobinopathies and cystic fibrosis. Further discovery efforts focused on a specified number of other genetic targets will also be conducted under the Collaboration Agreement. We will be responsible for discovery activities, and the related expenses will be fully funded by Vertex. Under the Collaboration Agreement, we and Vertex have each agreed to certain exclusivity obligations with respect to targets subject to the Collaboration Agreement.

Either party can terminate the Collaboration Agreement upon the other party's material breach, subject to specified notice and cure provisions. Vertex also has the right to terminate the Collaboration Agreement for convenience at any time upon 90 days' written notice prior to any product receiving marketing approval and upon 270 days' notice after a product has received marketing approval. In the event we and Vertex make a filing under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, for a collaboration target and such filing is not cleared within a specified time after such filing, the Collaboration Agreement will terminate with respect to that target. We may also terminate the Collaboration Agreement in the event Vertex challenges any of our patent rights.

Absent early termination, the Collaboration Agreement will continue until the expiration of the Vertex's payment obligations under the Collaboration Agreement. Upon termination, the targets that are not licensed by Vertex will be returned to us.

License Agreement with Anagenesis

On June 7, 2016, we entered into a license agreement with Anagenesis Biotechnologies SAS, or Anagenesis, pursuant to which we received an exclusive worldwide license to Anagenesis' proprietary technology for all human based muscle diseases. We plan to initially use these rights to advance our research and product development efforts for our Duchenne muscular dystrophy program. Pursuant to the license agreement, we made a one-time upfront payment of $0.5 million to Anagenesis and are required to pay Anagenesis up to $89.0 million upon the achievement of future clinical, regulatory and sales milestones for each of the first allogeneic and autologous licensed products developed pursuant to the license agreement, as well as low single digit royalty payments on future sales of commercialized product candidates.

We can terminate the license agreement at any time upon 30 days' written notice. Either party may also terminate the license agreement upon the other party's material breach, subject to specified notice and cure provisions. Either party may terminate the license agreement in the event the other party becomes subject to specified bankruptcy, winding up or similar circumstances. Absent early termination, the license agreement will continue until the expiration of our payment obligations on a country-by-country basis.

Manufacturing

We currently have no commercial manufacturing or cell processing capabilities. We are working to establish manufacturing processes for both *in vivo* and *ex vivo* CRISPR/Cas9-based therapies and have established relationships with third-party manufacturers with capabilities to manufacture the necessary human cells, Cas9 and guide RNAs in accordance with current Good Manufacturing Practices, or cGMP. We plan to continue to rely on qualified third-party organizations to produce or process bulk compounds, formulated compounds, viral vectors or engineered cells for IND-supporting activities and early stage clinical trials. We expect that commercial quantities of any compound, vector, or engineered cells that we may seek to develop will be manufactured in facilities and by processes that comply with FDA and other regulations. At the appropriate time in the product development process, we will determine whether to establish manufacturing facilities or continue to rely on third parties to manufacture commercial quantities of any products that we may successfully develop. Outside of the United States and Europe, where appropriate, we may elect in the future to utilize strategic partners, distributors or contract sales forces to assist in the commercialization of our products. In certain instances, we may consider building our own commercial infrastructure.

As product candidates advance through our pipeline, our commercial plans may change. In particular, some of our research programs target potentially larger indications. Data, the size of the development programs, the size of the target market, the size of a commercial infrastructure and manufacturing needs may all influence our strategies in the United States, Europe and the rest of the world.

Competition

The biotechnology and pharmaceutical industries, including in the gene therapy and gene editing fields, are characterized by rapidly advancing technologies, intense competition, and a strong emphasis on intellectual property and proprietary products. While we believe that our technology, development experience, and scientific knowledge provide us with competitive advantages, we currently face, and will continue to face, competition from many different sources, including major pharmaceutical, specialty pharmaceutical, and biotechnology companies, academic institutions and governmental agencies, and public and private research institutions. For any products that we may ultimately commercialize, not only will we compete with any existing therapies and those therapies currently in development, we will have to compete with new therapies that may become available in the future.

We compete in the segments of the pharmaceutical, biotechnology, and other related markets that utilize technologies encompassing genomic medicines to create therapies, including gene editing and gene therapy. There are additional companies that are working to develop therapies in areas related to our research programs.

Our platform and product focus is on the development of therapies using CRISPR/Cas9 technology. Other companies developing CRISPR/Cas9 technology include Intellia Therapeutics, Inc. and Editas Medicine, Inc.

There are additional companies developing therapies using additional gene-editing technologies, including TALENs, meganucleases, and zinc finger nucleases. The companies developing these additional gene-editing technologies include bluebird bio, Cellectis, Poseida Therapeutics, Precision Biosciences, and Sangamo Biosciences. Additional companies developing gene therapy products include Abeona Therapeutics, Avalanche Biotechnologies, Dimension Therapeutics, REGENXBIO, Spark Therapeutics and uniQure. In addition to competition from other gene-editing therapies or gene therapies, any products that we develop may also face competition from other types of therapies, such as small molecule, antibody, or protein therapies.

We may also face future competition from newly discovered gene editing technologies or new CRISPR-associated nucleases. While we believe that CRISPR/Cas9 will be highly effective for many therapeutic applications and are actively working to further enhance the technology, more efficient gene editing technologies may emerge. For example, recent publications by Feng Zhang, Ph.D., one of the founders of Editas Medicine, Inc. and others have elucidated a different CRISPR-associated nuclease, Cpf1, which can also edit human DNA. Some have argued that Cpf1 is superior to Cas9 for certain applications. Gene editing is a highly active field of research and new technologies, related or unrelated to CRISPR, may be discovered and create new competition.

In addition, many of our current or potential competitors, either alone or with their collaboration partners, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical, biotechnology, and gene therapy industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. The key competitive factors affecting the success of all of our programs are likely to be their efficacy, safety, convenience, and availability of reimbursement.

If our current programs are approved for the indications for which we are currently planning clinical trials, they may compete with other products currently under development, including gene editing and gene therapy products. Competition with other related products currently under development may include competition for clinical trial sites, patient recruitment, and product sales.

In addition, due to the intense research and development that is taking place by several companies, including us and our competitors, in the gene editing field, the intellectual property landscape is in flux and highly competitive. There may be significant intellectual property related litigation and proceedings, in addition to the ongoing interference proceedings, relating to our owned and in-licensed, and other third party, intellectual property and proprietary rights in the future. For example, in January 2016, at our request, the USPTO declared an interference between one of the pending U.S. patent applications we licensed from Dr. Emmanuelle Charpentier and twelve issued U.S. patents, and subsequently added one U.S. patent application, owned jointly by Broad. Because our application was filed first, the USPTO designated Dr. Charpentier, California and Vienna, or Vienna, collectively as “Senior Party” and designated Broad as “Junior Party.” Following motions by the parties and, potentially, a determination regarding which of the two parties was the first to invent, the PTAB might conclude that the contested subject matter is not patentable to the Senior Party and is patentable to the Junior Party, which in this case could preclude our U.S. patent applications from issuing as patents, in which case the proceedings would result in our losing the right to protect core innovations and our freedom to practice our core gene editing technology.

Similarly, ToolGen Inc., or ToolGen, filed Suggestions of Interference in the USPTO on April 13, 2015 and December 3, 2015, suggesting that they believe some of the claims in pending U.S. applications owned by ToolGen (U.S. Serial No. 14/685,568 and U.S. Serial No. 14/685,510, respectively) interfere with certain claims in five of the Broad patents currently involved in the interference with Dr. Emmanuelle Charpentier, California and Vienna. We are also aware of additional third parties that have pending patent applications relating to CRISPR technologies, which similarly may lead to further interference proceedings. For example, Rockefeller University has filed a continuation application (U.S. Serial No. 14/324,960) of an application filed by the Broad that Rockefeller’s employee Luciano Marraffini as co-inventor of CRISPR/Cas9 technology; Vilnius University

has filed applications in the United States and abroad (published internationally as WO2013/141680 and WO2013/142578), Harvard University has filed applications in the United States and abroad (published internationally as WO2014/099744), and Sigma- Aldrich has filed applications in the United States and abroad (published internationally as WO2014/089290), each claiming aspects of CRISPR/Cas9 technology based on applications claiming priority to provisional filings in 2012. Numerous other filings are based on provisional applications filed after 2012.

Both Broad and Toolgen have filed international counterparts of their U.S. applications, some of which were granted in Europe and/or other foreign jurisdictions. We and third parties have initiated opposition proceedings against some of these grants, and we may in the future oppose other grants to these or other applicants.

Government Regulation

Government authorities in the United States, at the federal, state and local level, and in other countries and jurisdictions, including the European Union, extensively regulate, among other things, the research, development, testing, manufacture, quality control, approval, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, post-approval monitoring and reporting, and import and export of pharmaceutical products, including biological products. Some jurisdictions outside of the United States also regulate the pricing of such products. The processes for obtaining marketing approvals in the United States and in foreign countries and jurisdictions, along with subsequent compliance with applicable statutes and regulations and other regulatory authorities, require the expenditure of substantial time and financial resources.

Licensure and Regulation of Biologics in the United States

In the United States, our candidate products would be regulated as biological products, or biologics, under the Public Health Service Act, or PHSA, and the Federal Food, Drug, and Cosmetic Act, or FDCA, and their implementing regulations. The failure to comply with the applicable U.S. requirements at any time during the product development process, including non-clinical testing, clinical testing, the approval process or post-approval process, may subject an applicant to delays in the conduct of a study, regulatory review and approval, and/or administrative or judicial sanctions. These sanctions may include, but are not limited to, the U.S. Food and Drug Administration's, or FDA's, refusal to allow an applicant to proceed with clinical testing, refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, untitled or warning letters, adverse publicity, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, and civil or criminal investigations and penalties brought by the FDA or the Department of Justice, or DOJ, or other governmental entities.

An applicant seeking approval to market and distribute a new biologic in the United States generally must satisfactorily complete each of the following steps:

- preclinical laboratory tests, animal studies and formulation studies all performed in accordance with the FDA's Good Laboratory Practice, or GLP, regulations;
- submission to the FDA of an investigational new drug, or IND, application for human clinical testing, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB, representing each clinical site before each clinical trial may be initiated, or by a central IRB if appropriate;
- performance of adequate and well-controlled human clinical trials to establish the safety, potency, and purity of the product candidate for each proposed indication, in accordance with the FDA's Good Clinical Practice, or GCP, regulations;
- preparation and submission to the FDA of a Biologics License Application, or BLA, for a biologic product requesting marketing for one or more proposed indications, including submission of detailed information on the manufacture and composition of the product and proposed labeling;

- review of the product by an FDA advisory committee, where appropriate or if applicable;
- satisfactory completion of one or more FDA inspections of the manufacturing facility or facilities, including those of third parties, at which the product, or components thereof, are produced to assess compliance with cGMP requirements and to assure that the facilities, methods, and controls are adequate to preserve the product's identity, strength, quality, and purity, and, if applicable, the FDA's current good tissue practice, or CGTP, for the use of human cellular and tissue products;
- satisfactory completion of any FDA audits of the non-clinical study and clinical trial sites to assure compliance with GLPs and GCPs, respectively, and the integrity of clinical data in support of the BLA;
- payment of user fees and securing FDA approval of the BLA; and
- compliance with any post-approval requirements, including the potential requirement to implement a Risk Evaluation and Mitigation Strategy, or REMS, adverse event reporting, and compliance with any post-approval studies required by the FDA.

Preclinical Studies and Investigational New Drug Application

Before testing any biologic product candidate in humans, including a gene therapy product candidate, the product candidate must undergo preclinical testing. Preclinical tests include laboratory evaluations of product chemistry, formulation and stability, as well as studies to evaluate the potential for efficacy and toxicity in animals. The conduct of the preclinical tests and formulation of the compounds for testing must comply with federal regulations and requirements. The results of the preclinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an Investigational New Drug, or IND, application. The IND automatically becomes effective 30 days after receipt by the FDA, unless before that time the FDA imposes a clinical hold based on concerns or questions about the product or conduct of the proposed clinical trial, including concerns that human research subjects would be exposed to unreasonable and significant health risks. In that case, the IND sponsor and the FDA must resolve any outstanding FDA concerns before the clinical trials can begin.

As a result, submission of the IND may result in the FDA not allowing the trials to commence or allowing the trial to commence on the terms originally specified by the sponsor in the IND. If the FDA raises concerns or questions either during this initial 30-day period, or at any time during the conduct of the IND study, including safety concerns or concerns due to non-compliance, it may impose a partial or complete clinical hold. This order issued by the FDA would delay either a proposed clinical study or cause suspension of an ongoing study, until all outstanding concerns have been adequately addressed and the FDA has notified the company that investigations may proceed or recommence but only under terms authorized by the FDA. This could cause significant delays or difficulties in completing planned clinical studies in a timely manner.

With gene therapy protocols, if the FDA allows the IND to proceed, but the Recombinant DNA Advisory Committee, or RAC, of the National Institute of Health, or NIH, decides that full public review of the protocol is warranted, the FDA will request at the completion of its IND review that sponsors delay initiation of the protocol until after completion of the RAC review process.

Human Clinical Trials in Support of a BLA

Clinical trials involve the administration of the investigational product candidate to healthy volunteers or patients with the disease to be treated under the supervision of a qualified principal investigator in accordance with GCP requirements. Clinical trials are conducted under study protocols detailing, among other things, the objectives of the study, inclusion and exclusion criteria, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated. A protocol for each clinical trial and subsequent protocol amendments must be submitted to the FDA as part of the IND.

A sponsor who wishes to conduct a clinical trial outside the United States may, but need not, obtain FDA authorization to conduct the clinical trial under an IND. If a foreign clinical trial is not conducted under an IND, the sponsor may submit data from a well-designed and well-conducted clinical trial to the FDA in support of the

BLA so long as the clinical trial is conducted in compliance with international guidelines for the ethical conduct of clinical research known as good clinical practice, or GCP, and the FDA is able to validate the data from the study through an onsite inspection if the FDA deems it necessary.

Further, each clinical trial must be reviewed and approved by an independent institutional review board, or IRB, either centrally or individually at each institution at which the clinical trial will be conducted. The IRB will consider, among other things, clinical trial design, subject informed consent, ethical factors, and the safety of human subjects. An IRB must operate in compliance with FDA regulations. The FDA or the clinical trial sponsor may suspend or terminate a clinical trial at any time for various reasons, including a finding that the clinical trial is not being conducted in accordance with FDA requirements or the subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients. Clinical testing also must satisfy extensive GCP rules and the requirements for informed consent. Additionally, some clinical trials are overseen by an independent group of qualified experts organized by the clinical trial sponsor, known as a data safety monitoring board or committee. This group may recommend continuation of the study as planned, changes in study conduct, or cessation of the study at designated check points based on access to certain data from the study. Finally, research activities involving infectious agents, hazardous chemicals, recombinant DNA, and genetically altered organisms and agents may be subject to review and approval of an Institutional Biosafety Committee in accordance with NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules.

Clinical trials typically are conducted in three sequential phases, but the phases may overlap or be combined. Additional studies may be required after approval.

- ***Phase 1*** clinical trials are initially conducted in a limited population to test the product candidate for safety, including adverse effects, dose tolerance, absorption, metabolism, distribution, excretion, and pharmacodynamics in healthy humans or, on occasion, in patients, such as cancer patients.
- ***Phase 2*** clinical trials are generally conducted in a limited patient population to identify possible adverse effects and safety risks, evaluate the efficacy of the product candidate for specific targeted indications and determine dose tolerance and optimal dosage. Multiple Phase 2 clinical trials may be conducted by the sponsor to obtain information prior to beginning larger and more costly Phase 3 clinical trials.
- ***Phase 3*** clinical trials proceed if the Phase 2 clinical trials demonstrate that a dose range of the product candidate is potentially effective and has an acceptable safety profile. Phase 3 clinical trials are undertaken within an expanded patient population to further evaluate dosage, and gather the additional information about effectiveness and safety that is needed to evaluate the overall benefit-risk relationship of the drug and to provide an adequate basis for physician labeling.

Progress reports detailing the results, if known, of the clinical trials must be submitted at least annually to the FDA. Written IND safety reports must be submitted to the FDA and the investigators within 15 calendar days after determining that the information qualifies for reporting. IND safety reports are required for serious and unexpected suspected adverse events, findings from other studies or animal or *in vitro* testing that suggest a significant risk to humans exposed to the drug, and any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. Additionally, a sponsor must notify FDA within 7 calendar days after receiving information concerning any unexpected fatal or life-threatening suspected adverse reaction.

In some cases, the FDA may approve a BLA for a product candidate but require the sponsor to conduct additional clinical trials to further assess the product candidate's safety and effectiveness after approval. Such post-approval trials are typically referred to as Phase 4 clinical trials. These studies are used to gain additional experience from the treatment of patients in the intended therapeutic indication and to document a clinical benefit in the case of biologics approved under accelerated approval regulations. Failure to exhibit due diligence with regard to conducting Phase 4 clinical trials could result in withdrawal of approval for products.

Special Regulations and Guidance Governing Gene Therapy Products

It is possible that the procedures and standards applied to gene therapy products and cell therapy products may be applied to any CRISPR/Cas9 product candidates we may develop, but that remains uncertain at this point. The FDA has defined a gene therapy product as one that mediates its effects by transcription and/or translation of transferred genetic material and/or by integrating into the host genome and which are administered as nucleic acids, viruses, or genetically engineered microorganisms. The products may be used to modify cells *in vivo* or transferred to cells *ex vivo* prior to administration to the recipient. Within the FDA, the Center for Biologics Evaluation and Research, or CBER, regulates gene therapy products. Within the CBER, the review of gene therapy and related products is consolidated in the Office of Cellular, Tissue and Gene Therapies, and the FDA has established the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER on its reviews. The CBER works closely with the NIH and the RAC, which makes recommendations to the NIH on gene therapy issues and engages in a public discussion of scientific, safety, ethical, and societal issues related to proposed and ongoing gene therapy protocols. The FDA and the NIH have published guidance documents with respect to the development and submission of gene therapy protocols.

Although the FDA has indicated that its guidance documents regarding gene therapies are not legally binding, we believe that our compliance with them is likely necessary to gain approval for any product candidate we may develop. The guidance documents provide additional factors that the FDA will consider at each of the above stages of development and relate to, among other things, the proper preclinical assessment of gene therapies; the chemistry, manufacturing, and control information that should be included in an IND application; the proper design of tests to measure product potency in support of an IND or BLA application; and measures to observe delayed adverse effects in subjects who have been exposed to investigational gene therapies when the risk of such effects is high. Further, the FDA usually recommends that sponsors observe subjects for potential gene therapy-related delayed adverse events for a 15-year period, including a minimum of five years of annual examinations followed by 10 years of annual queries, either in person or by questionnaire.

If a gene therapy trial is conducted at, or sponsored by, institutions receiving NIH funding for recombinant DNA research, a protocol and related documentation must submitted to, and the study registered with, the NIH Office of Biotechnology Activities, or OBA, pursuant to the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules prior to the submission of an IND to the FDA. In addition, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them. The NIH will convene the Recombinant DNA Advisory Committee, or RAC, a federal advisory committee, to discuss protocols that raise novel or particularly important scientific, safety or ethical considerations at one of its quarterly public meetings. The OBA will notify the FDA of the RAC's decision regarding the necessity for full public review of a gene therapy protocol. RAC proceedings and reports are posted to the OBA web site and may be accessed by the public.

Finally, to facilitate adverse event reporting and dissemination of additional information about gene therapy trials, the FDA and the NIH established the Genetic Modification Clinical Research Information System, or GeMCRIS. Investigators and sponsors of a human gene transfer trials can utilize this web-based system to report serious adverse events and annual reports. GeMCRIS also allows members of the public to access basic reports about human gene transfer trials registered with the NIH and to search for information such as trial location, the names of investigators conducting trials, and the names of gene transfer products being studied.

Compliance with cGMP and CGTP Requirements

Before approving a BLA, the FDA typically will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in full compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. The PHSA emphasizes the importance of manufacturing control for products like biologics whose attributes cannot be precisely defined.

For a gene therapy product, the FDA also will not approve the product if the manufacturer is not in compliance with CGTP. These requirements are found in FDA regulations that govern the methods used in, and the facilities and controls used for, the manufacture of human cells, tissues, and cellular and tissue based products, or HCT/Ps, which are human cells or tissue intended for implantation, transplant, infusion, or transfer into a human recipient. The primary intent of the CGTP requirements is to ensure that cell and tissue based products are manufactured in a manner designed to prevent the introduction, transmission, and spread of communicable disease. FDA regulations also require tissue establishments to register and list their HCT/Ps with the FDA and, when applicable, to evaluate donors through screening and testing.

Manufacturers and others involved in the manufacture and distribution of products must also register their establishments with the FDA and certain state agencies. Both domestic and foreign manufacturing establishments must register and provide additional information to the FDA upon their initial participation in the manufacturing process. Any product manufactured by or imported from a facility that has not registered, whether foreign or domestic, is deemed misbranded under the FDCA. Establishments may be subject to periodic unannounced inspections by government authorities to ensure compliance with cGMPs and other laws. Manufacturers may also have to provide, on request, electronic or physical records regarding their establishments. Delaying, denying, limiting, or refusing inspection by the FDA may lead to a product being deemed to be adulterated.

Review and Approval of a BLA

The results of product candidate development, preclinical testing, and clinical trials, including negative or ambiguous results as well as positive findings, are submitted to the FDA as part of a BLA requesting a license to market the product. The BLA must contain extensive manufacturing information and detailed information on the composition of the product and proposed labeling as well as payment of a user fee.

The FDA has 60 days after submission of the application to conduct an initial review to determine whether it is sufficient to accept for filing based on the agency's threshold determination that it is sufficiently complete to permit substantive review. Once the submission has been accepted for filing, the FDA begins an in-depth review of the application. Under the goals and policies agreed to by the FDA under the Prescription Drug User Fee Act, or the PDUFA, the FDA has ten months in which to complete its initial review of a standard application and respond to the applicant, and six months for a priority review of the application. The FDA does not always meet its PDUFA goal dates for standard and priority BLAs. The review process may often be significantly extended by FDA requests for additional information or clarification. The review process and the PDUFA goal date may be extended by three months if the FDA requests or if the applicant otherwise provides through the submission of a major amendment additional information or clarification regarding information already provided in the submission within the last three months before the PDUFA goal date.

Under the PHSA, the FDA may approve a BLA if it determines that the product is safe, pure, and potent and the facility where the product will be manufactured meets standards designed to ensure that it continues to be safe, pure, and potent.

On the basis of the FDA's evaluation of the application and accompanying information, including the results of the inspection of the manufacturing facilities and any FDA audits of non-clinical study and clinical trial sites to assure compliance with GLPs and GCPs, respectively, the FDA may issue an approval letter or a complete response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. If the application is not approved, the FDA will issue a complete response letter, which will contain the conditions that must be met in order to secure final approval of the application, and when possible will outline recommended actions the sponsor might take to obtain approval of the application. Sponsors that receive a complete response letter may submit to the FDA information that represents a complete response to the issues identified by the FDA. Such resubmissions are classified under PDUFA as either Class 1 or Class 2. The classification of a resubmission is based on the information submitted by an applicant in response to an action letter. Under the goals and policies agreed to by the FDA under PDUFA, the FDA has two months to review a Class 1 resubmission and six months to review a Class 2 resubmission. The FDA will not approve an application until issues identified in the complete response letter have been addressed.

The FDA may also refer the application to an advisory committee for review, evaluation, and recommendation as to whether the application should be approved. In particular, the FDA may refer applications for novel biologic products or biologic products that present difficult questions of safety or efficacy to an advisory committee. Typically, an advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates, and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

If the FDA approves a new product, it may limit the approved indications for use of the product. It may also require that contraindications, warnings or precautions be included in the product labeling. In addition, the FDA may call for post-approval studies, including Phase 4 clinical trials, to further assess the product's safety after approval. The agency may also require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms, including REMS, to help ensure that the benefits of the product outweigh the potential risks. REMS can include medication guides, communication plans for healthcare professionals, and elements to assure safe use, or ETASU. ETASU can include, but are not limited to, specific or special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring, and the use of patent registries. The FDA may prevent or limit further marketing of a product based on the results of post-market studies or surveillance programs. After approval, many types of changes to the approved product, such as adding new indications, certain manufacturing changes and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Fast Track, Breakthrough Therapy and Priority Review Designations

The FDA is authorized to designate certain products for expedited review if they are intended to address an unmet medical need in the treatment of a serious or life-threatening disease or condition. These programs are referred to as fast track designation, breakthrough therapy designation, and priority review designation.

Specifically, the FDA may designate a product for fast track review if it is intended, whether alone or in combination with one or more other products, for the treatment of a serious or life-threatening disease or condition, and it demonstrates the potential to address unmet medical needs for such a disease or condition. For fast track products, sponsors may have greater interactions with the FDA and the FDA may initiate review of sections of a fast track product's application before the application is complete. This rolling review may be available if the FDA determines, after preliminary evaluation of clinical data submitted by the sponsor, that a fast track product may be effective. The sponsor must also provide, and the FDA must approve, a schedule for the submission of the remaining information and the sponsor must pay applicable user fees. However, the FDA's time period goal for reviewing a fast track application does not begin until the last section of the application is submitted. In addition, the fast track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process, or if the designated drug development program is no longer being pursued.

Second, in 2012, Congress enacted the Food and Drug Administration Safety and Innovation Act, or FDASIA. This law established a new regulatory scheme allowing for expedited review of products designated as "breakthrough therapies." A product may be designated as a breakthrough therapy if it is intended, either alone or in combination with one or more other products, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The FDA may take certain actions with respect to breakthrough therapies, including holding meetings with the sponsor throughout the development process; providing timely advice to the product sponsor regarding development and approval; involving more senior staff in the review process; assigning a cross-disciplinary project lead for the review team; and taking other steps to design the clinical trials in an efficient manner.

Third, the FDA may designate a product for priority review if it is a product that treats a serious condition and, if approved, would provide a significant improvement in safety or effectiveness. The FDA determines, on a case-by-case basis, whether the proposed product represents a significant improvement when compared with other available therapies. Significant improvement may be illustrated by evidence of increased effectiveness in the treatment of a condition, elimination or substantial reduction of a treatment-limiting adverse reaction, documented enhancement of patient compliance that may lead to improvement in serious outcomes, and evidence of safety and effectiveness in a new subpopulation. A priority designation is intended to direct overall attention and resources to the evaluation of such applications, and to shorten the FDA's goal for taking action on a marketing application from ten months to six months.

Accelerated Approval Pathway

The FDA may grant accelerated approval to a product for a serious or life-threatening condition that provides meaningful therapeutic advantage to patients over existing treatments based upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit. The FDA may also grant accelerated approval for such a condition when the product has an effect on an intermediate clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality, or IMM, and that is reasonably likely to predict an effect on IMM or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. Products granted accelerated approval must meet the same statutory standards for safety and effectiveness as those granted traditional approval.

For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign, or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. Surrogate endpoints can often be measured more easily or more rapidly than clinical endpoints. An intermediate clinical endpoint is a measurement of a therapeutic effect that is considered reasonably likely to predict the clinical benefit of a product, such as an effect on IMM. The FDA has limited experience with accelerated approvals based on intermediate clinical endpoints, but has indicated that such endpoints generally could support accelerated approval where a study demonstrates a relatively short-term clinical benefit in a chronic disease setting in which assessing durability of the clinical benefit is essential for traditional approval, but the short-term benefit is considered reasonably likely to predict long-term benefit.

The accelerated approval pathway is most often used in settings in which the course of a disease is long and an extended period of time is required to measure the intended clinical benefit of a product, even if the effect on the surrogate or intermediate clinical endpoint occurs rapidly. Thus, accelerated approval has been used extensively in the development and approval of products for treatment of a variety of cancers in which the goal of therapy is generally to improve survival or decrease morbidity and the duration of the typical disease course requires lengthy and sometimes large trials to demonstrate a clinical or survival benefit.

The accelerated approval pathway is usually contingent on a sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the product's clinical benefit. As a result, a product candidate approved on this basis is subject to rigorous post-marketing compliance requirements, including the completion of Phase 4 or post-approval clinical trials to confirm the effect on the clinical endpoint. Failure to conduct required post-approval studies, or confirm a clinical benefit during post-marketing studies, would allow the FDA to withdraw the product from the market on an expedited basis. All promotional materials for product candidates approved under accelerated regulations are subject to prior review by the FDA.

Post-Approval Regulation

If regulatory approval for marketing of a product or new indication for an existing product is obtained, the sponsor will be required to comply with all regular post-approval regulatory requirements as well as any post-approval requirements that the FDA has imposed as part of the approval process. The sponsor will be required to

report certain adverse reactions and production problems to the FDA, provide updated safety and efficacy information and comply with requirements concerning advertising and promotional labeling requirements. Manufacturers and certain of their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with ongoing regulatory requirements, including cGMP regulations, which impose certain procedural and documentation requirements upon manufacturers. Accordingly, the sponsor and its third-party manufacturers must continue to expend time, money, and effort in the areas of production and quality control to maintain compliance with cGMP regulations and other regulatory requirements.

A product may also be subject to official lot release, meaning that the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. If the product is subject to official lot release, the manufacturer must submit samples of each lot, together with a release protocol showing a summary of the history of manufacture of the lot and the results of all of the manufacturer's tests performed on the lot, to the FDA. The FDA may in addition perform certain confirmatory tests on lots of some products before releasing the lots for distribution. Finally, the FDA will conduct laboratory research related to the safety, purity, potency, and effectiveness of pharmaceutical products.

Once an approval is granted, the FDA may withdraw the approval if compliance with regulatory requirements is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, untitled or warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of licensed and approved products that are placed on the market. Pharmaceutical products may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

Orphan Drug Designation

Orphan drug designation in the United States is designed to encourage sponsors to develop products intended for rare diseases or conditions. In the United States, a rare disease or condition is statutorily defined as a condition that affects fewer than 200,000 individuals in the United States or that affects more than 200,000 individuals in the United States and for which there is no reasonable expectation that the cost of developing and making available the biologic for the disease or condition will be recovered from sales of the product in the United States.

Orphan drug designation qualifies a company for tax credits and market exclusivity for seven years following the date of the product's marketing approval if granted by the FDA. An application for designation as

an orphan product can be made any time prior to the filing of an application for approval to market the product. A product becomes an orphan when it receives orphan drug designation from the Office of Orphan Products Development, or OOPD, at the FDA based on acceptable confidential requests made under the regulatory provisions. The product must then go through the review and approval process for commercial distribution like any other product.

A sponsor may request orphan drug designation of a previously unapproved product or new orphan indication for an already marketed product. In addition, a sponsor of a product that is otherwise the same product as an already approved orphan drug may seek and obtain orphan drug designation for the subsequent product for the same rare disease or condition if it can present a plausible hypothesis that its product may be clinically superior to the first drug. More than one sponsor may receive orphan drug designation for the same product for the same rare disease or condition, but each sponsor seeking orphan drug designation must file a complete request for designation.

The period of exclusivity begins on the date that the marketing application is approved by the FDA and applies only to the indication for which the product has been designated. The FDA may approve a second application for the same product for a different use or a second application for a clinically superior version of the product for the same use. The FDA cannot, however, approve the same product made by another manufacturer for the same indication during the market exclusivity period unless it has the consent of the sponsor or the sponsor is unable to provide sufficient quantities.

Pediatric Studies and Exclusivity

Under the Pediatric Research Equity Act of 2003, a BLA or supplement thereto must contain data that are adequate to assess the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. Sponsors must also submit pediatric study plans prior to the assessment data. Those plans must contain an outline of the proposed pediatric study or studies the applicant plans to conduct, including study objectives and design, any deferral or waiver requests, and other information required by regulation. The applicant, the FDA, and the FDA's internal review committee must then review the information submitted, consult with each other, and agree upon a final plan. The FDA or the applicant may request an amendment to the plan at any time.

The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or full or partial waivers from the pediatric data requirements. Additional requirements and procedures relating to deferral requests and requests for extension of deferrals are contained in FDASIA. Unless otherwise required by regulation, the pediatric data requirements do not apply to products with orphan designation.

Pediatric exclusivity is another type of non-patent marketing exclusivity in the United States and, if granted, provides for the attachment of an additional six months of marketing protection to the term of any existing regulatory exclusivity, including the non-patent and orphan exclusivity. This six-month exclusivity may be granted if a BLA sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data do not need to show the product to be effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted. If reports of requested pediatric studies are submitted to and accepted by the FDA within the statutory time limits, whatever statutory or regulatory periods of exclusivity or patent protection cover the product are extended by six months. This is not a patent term extension, but it effectively extends the regulatory period during which the FDA cannot approve another application.

Biosimilars and Exclusivity

The Patient Protection and Affordable Care Act, which was signed into law in March 2010, included a subtitle called the Biologics Price Competition and Innovation Act of 2009 or BPCIA. The BPCIA established a

regulatory scheme authorizing the FDA to approve biosimilars and interchangeable biosimilars. To date, four biosimilar products have been approved by the FDA for use in the United States. No interchangeable biosimilars, however, have been approved. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars. Additional guidances are expected to be finalized by the FDA in the near term.

Under the BPCIA, a manufacturer may submit an application for licensure of a biologic product that is "biosimilar to" or "interchangeable with" a previously approved biological product or "reference product." In order for the FDA to approve a biosimilar product, it must find that there are no clinically meaningful differences between the reference product and proposed biosimilar product in terms of safety, purity, and potency. For the FDA to approve a biosimilar product as interchangeable with a reference product, the agency must find that the biosimilar product can be expected to produce the same clinical results as the reference product, and (for products administered multiple times) that the biologic and the reference biologic may be switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date of approval of the reference product. The FDA may not approve a biosimilar product until 12 years from the date on which the reference product was approved. Even if a product is considered to be a reference product eligible for exclusivity, another company could market a competing version of that product if the FDA approves a full BLA for such product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity, and potency of their product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

Patent Term Restoration and Extension

A patent claiming a new biologic product may be eligible for a limited patent term extension under the Hatch-Waxman Act, which permits a patent restoration of up to five years for patent term lost during product development and FDA regulatory review. The restoration period granted on a patent covering a product is typically one-half the time between the effective date of an IND and the submission date of a marketing application, plus the time between the submission date of the marketing application and the ultimate approval date, less any time the applicant failed to act with due diligence. Patent term restoration cannot be used to extend the remaining term of a patent past a total of 14 years from the product's approval date. Only one patent applicable to an approved product is eligible for the extension, and the application for the extension must be submitted prior to the expiration of the patent in question. A patent that covers multiple products for which approval is sought can only be extended in connection with one of the approvals. The USPTO reviews and approves the application for any patent term extension or restoration in consultation with the FDA.

Regulation And Procedures Governing Approval Of Medicinal Products In The European Union

In order to market any product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of products. Whether or not it obtains FDA approval for a product, an applicant will need to obtain the necessary approvals by the comparable foreign regulatory authorities before it can commence clinical trials or marketing of the product in those countries or jurisdictions. Specifically, the process governing approval of medicinal products in the European Union, or EU, generally follows the same lines as in the United States. It entails satisfactory completion of preclinical studies and adequate and well-controlled clinical trials to establish the safety and efficacy of the product for each proposed indication. It also requires the submission to the European Medicines Agency, or EMA, or the relevant competent authorities of a marketing authorization application, or MAA, and granting of a marketing authorization by the EMA or these authorities before the product can be marketed and sold in the EU.

Clinical Trial Approval

Pursuant to the currently applicable Clinical Trials Directive 2001/20/EC and the Commission Directive 2005/28/EC on GCP, a system for the approval of clinical trials in the EU has been implemented through national legislation of the member states. Under this system, an applicant must obtain approval from the competent national authority of an EU member state in which the clinical trial is to be conducted, or in multiple member states if the clinical trial is to be conducted in a number of member states. Furthermore, the applicant may only start a clinical trial at a specific study site after the ethics committee has issued a favorable opinion. The CTA must be accompanied by an investigational medicinal product dossier with supporting information prescribed by Directive 2001/20/EC and Commission Directive 2005/28/EC and corresponding national laws of the member states and further detailed in applicable guidance documents.

In April 2014, the EU adopted a new Clinical Trials Regulation (EU) No 536/2014, which is set to replace the current Clinical Trials Directive 2001/20/EC. The new Clinical Trials Regulation (EU) No 536/2014 will become applicable no earlier than May 28, 2016. It will overhaul the current system of approvals for clinical trials in the EU. Specifically, the new legislation, which will be directly applicable in all member states, aims at simplifying and streamlining the approval of clinical trials in the EU. For instance, the new Clinical Trials Regulation provides for a streamlined application procedure via a single entry point and strictly defined deadlines for the assessment of clinical trial applications.

Marketing Authorization

To obtain a marketing authorization for a product under the EU regulatory system, an applicant must submit an MAA, either under a centralized procedure administered by the European Medicines Agency, or EMA, or one of the procedures administered by competent authorities in EU Member States (decentralized procedure, national procedure, or mutual recognition procedure). A marketing authorization may be granted only to an applicant established in the EU. Regulation (EC) No 1901/2006 provides that prior to obtaining a marketing authorization in the EU, an applicant must demonstrate compliance with all measures included in an EMA-approved Pediatric Investigation Plan, or PIP, covering all subsets of the pediatric population, unless the EMA has granted a product-specific waiver, class waiver, or a deferral for one or more of the measures included in the PIP.

The centralized procedure provides for the grant of a single marketing authorization by the European Commission that is valid for all EU member states. Pursuant to Regulation (EC) No. 726/2004, the centralized procedure is compulsory for specific products, including for medicines produced by certain biotechnological processes, products designated as orphan medicinal products, advanced therapy products and products with a new active substance indicated for the treatment of certain diseases, including products for the treatment of cancer. For products that are highly innovative or for which a centralized process is in the interest of patients, the centralized procedure may be optional.

Specifically, the grant of marketing authorization in the European Union for products containing viable human tissues or cells such as gene therapy medicinal products is governed by Regulation (EC) No 1394/2007 on advanced therapy medicinal products, read in combination with Directive 2001/83/EC of the European Parliament and of the Council, commonly known as the Community code on medicinal products. Regulation (EC) No 1394/2007 lays down specific rules concerning the authorization, supervision, and pharmacovigilance of gene therapy medicinal products, somatic cell therapy medicinal products, and tissue engineered products. Manufacturers of advanced therapy medicinal products must demonstrate the quality, safety, and efficacy of their products to EMA which provides an opinion regarding the application for marketing authorization. The European Commission grants or refuses marketing authorization in light of the opinion delivered by EMA.

Under the centralized procedure, the Committee for Medicinal Products for Human Use, or the CHMP, established at the EMA is responsible for conducting an initial assessment of a product. Under the centralized

procedure in the European Union, the maximum timeframe for the evaluation of an MAA is 210 days, excluding clock stops when additional information or written or oral explanation is to be provided by the applicant in response to questions of the CHMP. Accelerated evaluation may be granted by the CHMP in exceptional cases, when a medicinal product is of major interest from the point of view of public health and, in particular, from the viewpoint of therapeutic innovation. If the CHMP accepts such a request, the time limit of 210 days will be reduced to 150 days, but it is possible that the CHMP may revert to the standard time limit for the centralized procedure if it determines that it is no longer appropriate to conduct an accelerated assessment.

Regulatory Data Protection in the European Union

In the European Union, new chemical entities approved on the basis of a complete independent data package qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market exclusivity pursuant to Regulation (EC) No 726/2004, as amended, and Directive 2001/83/EC, as amended. Data exclusivity prevents regulatory authorities in the European Union from referencing the innovator's data to assess a generic (abbreviated) application for a period of eight years. During the additional two-year period of market exclusivity, a generic marketing authorization application can be submitted, and the innovator's data may be referenced, but no generic medicinal product can be marketed until the expiration of the market exclusivity. The overall ten-year period will be extended to a maximum of eleven years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to authorization, is held to bring a significant clinical benefit in comparison with existing therapies. Even if a compound is considered to be a new chemical entity so that the innovator gains the prescribed period of data exclusivity, another company may market another version of the product if such company obtained marketing authorization based on an MAA with a complete independent data package of pharmaceutical tests, preclinical tests and clinical trials.

Periods of Authorization and Renewals

A marketing authorization is valid for five years, in principle, and it may be renewed after five years on the basis of a reevaluation of the risk-benefit balance by the EMA or by the competent authority of the authorizing member state. To that end, the marketing authorization holder must provide the EMA or the competent authority with a consolidated version of the file in respect of quality, safety and efficacy, including all variations introduced since the marketing authorization was granted, at least nine months before the marketing authorization ceases to be valid. Once renewed, the marketing authorization is valid for an unlimited period, unless the European Commission or the competent authority decides, on justified grounds relating to pharmacovigilance, to proceed with one additional five-year renewal period. Any authorization that is not followed by the placement of the drug on the EU market (in the case of the centralized procedure) or on the market of the authorizing member state within three years after authorization ceases to be valid.

Regulatory Requirements after Marketing Authorization

Following approval, the holder of the marketing authorization is required to comply with a range of requirements applicable to the manufacturing, marketing, promotion and sale of the medicinal product. These include compliance with the EU's stringent pharmacovigilance or safety reporting rules, pursuant to which post-authorization studies and additional monitoring obligations can be imposed. In addition, the manufacturing of authorized products, for which a separate manufacturer's license is mandatory, must also be conducted in strict compliance with the EMA's GMP requirements and comparable requirements of other regulatory bodies in the EU, which mandate the methods, facilities, and controls used in manufacturing, processing and packing of drugs to assure their safety and identity. Finally, the marketing and promotion of authorized products, including advertising directed toward the prescribers of drugs and/or the general public, are strictly regulated in the European Union under Directive 2001/83/EC, as amended.

Orphan Drug Designation and Exclusivity

Regulation (EC) No 141/2000 and Regulation (EC) No 847/2000 provide that a product can be designated as an orphan drug by the European Commission if its sponsor can establish: that the product is intended for the diagnosis, prevention or treatment of (i) a life-threatening or chronically debilitating condition affecting not more than five in ten thousand persons in the EU when the application is made, or (ii) a life-threatening, seriously debilitating or serious and chronic condition in the EU and that without incentives it is unlikely that the marketing of the drug in the EU would generate sufficient return to justify the necessary investment. For either of these conditions, the applicant must demonstrate that there exists no satisfactory method of diagnosis, prevention, or treatment of the condition in question that has been authorized in the EU or, if such method exists, the drug will be of significant benefit to those affected by that condition.

An orphan drug designation provides a number of benefits, including fee reductions, regulatory assistance, and the ability to apply for a centralized EU marketing authorization. Marketing authorization for an orphan drug leads to a ten-year period of market exclusivity. During this market exclusivity period, neither the European Commission nor the member states can accept an application or grant a marketing authorization for a "similar medicinal product." A "similar medicinal product" is defined as a medicinal product containing a similar active substance or substances as contained in an authorized orphan medicinal product, and which is intended for the same therapeutic indication. The market exclusivity period for the authorized therapeutic indication may, however, be reduced to six years if, at the end of the fifth year, it is established that the product no longer meets the criteria for orphan drug designation because, for example, the product is sufficiently profitable not to justify market exclusivity.

Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we may seek regulatory approval by the FDA or other government authorities. In the United States and markets in other countries, patients who are prescribed treatments for their conditions and providers performing the prescribed services generally rely on third-party payors to reimburse all or part of the associated healthcare costs. Patients are unlikely to use any product candidates we may develop unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of such product candidates. Even if any product candidates we may develop are approved, sales of such product candidates will depend, in part, on the extent to which third-party payors, including government health programs in the United States such as Medicare and Medicaid, commercial health insurers, and managed care organizations, provide coverage, and establish adequate reimbursement levels for, such product candidates. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the product once coverage is approved. Third-party payors are increasingly challenging the prices charged, examining the medical necessity, and reviewing the cost-effectiveness of medical products and services and imposing controls to manage costs. Third-party payors may limit coverage to specific products on an approved list, also known as a formulary, which might not include all of the approved products for a particular indication.

In order to secure coverage and reimbursement for any product that might be approved for sale, a company may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costs required to obtain FDA or other comparable marketing approvals. Nonetheless, product candidates may not be considered medically necessary or cost effective. A decision by a third-party payor not to cover any product candidates we may develop could reduce physician utilization of such product candidates once approved and have a material adverse effect on our sales, results of operations and financial condition. Additionally, a payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide coverage and reimbursement for the product, and the level of coverage and reimbursement can differ significantly from payor to payor. Third-party reimbursement and coverage may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development.

The containment of healthcare costs also has become a priority of federal, state and foreign governments and the prices of pharmaceuticals have been a focus in this effort. Governments have shown significant interest in implementing cost-containment programs, including price controls, restrictions on reimbursement, and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit a company's revenue generated from the sale of any approved products. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which a company or its collaborators receive marketing approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Outside the United States, ensuring adequate coverage and payment for any product candidates we may develop will face challenges. Pricing of prescription pharmaceuticals is subject to governmental control in many countries. Pricing negotiations with governmental authorities can extend well beyond the receipt of regulatory marketing approval for a product and may require us to conduct a clinical trial that compares the cost effectiveness of any product candidates we may develop to other available therapies. The conduct of such a clinical trial could be expensive and result in delays in our commercialization efforts.

In the European Union, pricing and reimbursement schemes vary widely from country to country. Some countries provide that products may be marketed only after a reimbursement price has been agreed. Some countries may require the completion of additional studies that compare the cost-effectiveness of a particular product candidate to currently available therapies (so called health technology assessments, or HTAs) in order to obtain reimbursement or pricing approval. For example, the European Union provides options for its member states to restrict the range of products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. E.U. member states may approve a specific price for a product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the product on the market. Other member states allow companies to fix their own prices for products, but monitor and control prescription volumes and issue guidance to physicians to limit prescriptions. Recently, many countries in the European Union have increased the amount of discounts required on pharmaceuticals and these efforts could continue as countries attempt to manage healthcare expenditures, especially in light of the severe fiscal and debt crises experienced by many countries in the European Union. The downward pressure on health care costs in general, particularly prescription products, has become intense. As a result, increasingly high barriers are being erected to the entry of new products. Political, economic, and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. Reference pricing used by various European Union Member States, and parallel trade (arbitrage between low-priced and high-priced member states), can further reduce prices. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products, if approved in those countries.

Healthcare Law and Regulation

Healthcare providers and third-party payors play a primary role in the recommendation and prescription of pharmaceutical products that are granted marketing approval. Arrangements with providers, consultants, third-party payors, and customers are subject to broadly applicable fraud and abuse, anti-kickback, false claims laws, reporting of payments to physicians and teaching physicians and patient privacy laws and regulations and other healthcare laws and regulations that may constrain our business and/or financial arrangements. Restrictions under applicable federal and state healthcare laws and regulations, include the following:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, paying, or receiving remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made, in whole or in part, under a federal healthcare program such as Medicare and Medicaid;

- the federal civil and criminal false claims laws, including the civil U.S. False Claims Act, and civil monetary penalties laws, which prohibit individuals or entities from, among other things, knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false, fictitious, or fraudulent or knowingly making, using, or causing to be made or used a false record or statement to avoid, decrease, or conceal an obligation to pay money to the federal government. In addition, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the U.S. False Claims Act;
- the federal false statements statute prohibits knowingly and willfully falsifying, concealing, or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items, or services; similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. federal Health Insurance Portability and Accountability Act, or HIPAA, as amended by the U.S. Health Information Technology for Economic and Clinical Health Act, and their respective implementing regulations, including the Final Omnibus Rule published in January 2013, which impose obligations with respect to safeguarding the privacy, security, and transmission of individually identifiable information that constitutes protected health information, including mandatory contractual terms and restrictions on the use and/or disclosure of such information without proper authorization;
- the federal transparency requirements known as the federal Physician Payments Sunshine Act, under the U.S. Patient Protection and Affordable Care Act, as amended by the U.S. Health Care and Education Reconciliation Act, collectively the Affordable Care Act or ACA, which requires certain manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare & Medicaid Services, or CMS, within the U.S. Department of Health and Human Services, information related to payments and other transfers of value made by that entity to physicians and teaching hospitals, and requires certain manufacturers and appliacble group purchasing organizations to report ownership and investment interests held by physicians or their immediate family members; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to healthcare items or services that are reimbursed by non-governmental third-party payors, including private insurers.

Some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring pharmaceutical manufacturers to report information related to payments to physicians and other health care providers or marketing expenditures. State and foreign laws also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Healthcare Reform

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. There have been a number of federal and state proposals during the last few years regarding the pricing of pharmaceutical and biopharmaceutical products, limiting coverage and reimbursement for drugs and other medical products, government control and other changes to the healthcare system in the United States.

By way of example, the United States and state governments continue to propose and pass legislation designed to reduce the cost of healthcare. In March 2010, the United States Congress enacted the ACA, which, among other things, includes changes to the coverage and payment for products under government health care programs. Among the provisions of the ACA of importance to our potential product candidates are:

- an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic products, apportioned among these entities according to their market share in certain

government healthcare programs, although this fee would not apply to sales of certain products approved exclusively for orphan indications;

- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer's Medicaid rebate liability;
- expanded manufacturers' rebate liability under the Medicaid Drug Rebate Program by increasing the minimum rebate for both branded and generic drugs and revising the definition of "average manufacturer price," or AMP, for calculating and reporting Medicaid drug rebates on outpatient prescription drug prices and extending rebate liability to prescriptions for individuals enrolled in Medicare Advantage plans;
- addressed a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for products that are inhaled, infused, instilled, implanted or injected;
- expanded the types of entities eligible for the 340B drug discount program;
- established the Medicare Part D coverage gap discount program by requiring manufacturers to provide a 50% point-of-sale-discount off the negotiated price of applicable products to eligible beneficiaries during their coverage gap period as a condition for the manufacturers' outpatient products to be covered under Medicare Part D;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- the Independent Payment Advisory Board, or IPAB, which has authority to recommend certain changes to the Medicare program to reduce expenditures by the program that could result in reduced payments for prescription products. However, the IPAB implementation has been not been clearly defined. The ACA provided that under certain circumstances IPAB recommendations will become law unless Congress enacts legislation that will achieve the same or greater Medicare cost savings; and
- established the Center for Medicare and Medicaid Innovation within CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription product spending. Funding has been allocated to support the mission of the Center for Medicare and Medicaid Innovation from 2011 to 2019.

Other legislative changes have been proposed and adopted in the United States since the ACA was enacted. For example, in August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2012 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of up to 2% per fiscal year, which went into effect in April 2013 and will remain in effect through 2024 unless additional Congressional action is taken. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers, and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal, and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. Such reforms could have an adverse effect on anticipated revenues from product candidates that we may successfully develop and for which we may obtain marketing approval and may affect our overall financial condition and ability to develop product candidates.

Additional Regulation

In addition to the foregoing, state, and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservation and Recovery Act, and

the Toxic Substances Control Act, affect our business. These and other laws govern the use, handling, and disposal of various biologic, chemical, and radioactive substances used in, and wastes generated by, operations. If our operations result in contamination of the environment or expose individuals to hazardous substances, we could be liable for damages and governmental fines. Equivalent laws have been adopted in third countries that impose similar obligations.

Employees

As of September 2, 2016 we had 77 full-time employees, 42 of whom held Ph.D. or M.D. degrees, 63 of whom were engaged in research and development, and 14 of whom were engaged in business development, finance, information systems, facilities, human resources, legal functions, or administrative support. None of our employees is represented by a labor union, and none of our employees has entered into a collective bargaining agreement with us. We consider our employee relations to be good.

Facilities

Our principal executive offices are located in Basel, Switzerland, where we occupy approximately 365 square feet of office and laboratory space. We do not have a written lease agreement for our occupancy of this space but are working to finalize a formal lease agreement. We also have offices in Cambridge, Massachusetts, where we lease approximately 19,817 square feet of office and laboratory space. Our lease for our Cambridge, Massachusetts office and laboratory space expires February 15, 2022. We also lease approximately 350 square feet of space in London, England. This lease is on a month to month basis. We believe that our facilities are adequate for our current needs and that suitable additional or substitute space would be available if needed.

Legal Proceedings

From time to time, we may become involved in litigation or other legal proceedings relating to claims arising from the ordinary course of business. There are currently no claims or actions pending against us that, in the opinion of our management, are likely to have a material adverse effect on our business. In January 2016, the USPTO, declared an interference between one of the pending U.S. patent applications we have in-licensed from Dr. Emmanuelle Charpentier and twelve issued U.S. patents and one U.S. patent application owned jointly by Broad. The interference was redeclared in March 2016 to add a U.S. patent application owned by Broad. An interference is a proceeding conducted at the USPTO by the Patent Trial and Appeal Board, or PTAB, to determine which party was first to invent subject matter by at least two parties. There are currently two parties to this interference. Our in-licensed patent application is co-owned among Dr. Emmanuelle Charpentier, California and Vienna, whom the USPTO designated collectively as “Senior Party”; Broad was designated as “Junior Party.” Following motions by the parties and other procedural matters, the PTAB could conclude that the contested subject matter is not patentable to the Senior Party, which in this case could preclude Senior Party’s U.S. patent application from issuing a patent; that the contested subject matter is not patentable to the Junior Party, which in this case could result in the cancellation of some or all of the Junior Party’s claims; that the contested subject matter is not patentable to either party; or that the interference should be dismissed. Either party can appeal an adverse decision to the U.S. Court of Appeals for the Federal Circuit. For further information regarding risks regarding the interference and patent rights held by third parties, please see “Risk Factors—Risks Related to Our Intellectual Property.”

MANAGEMENT

Executive Officers and Board of Directors

The following table presents information about our executive officers and directors, including their ages, as of September 30, 2016. The term of each of our directors extends until the next annual general meeting and, accordingly, will expire at the annual general meeting to be held in 2016.

Name	Position	Age
Executive Officers		
Rodger Novak, M.D.	Chief Executive Officer and Director	49
Marc Becker.	Chief Financial Officer	44
Sven Ante (Bill) Lundberg, M.D.	Chief Scientific Officer	53
Samarth Kulkarni, Ph.D.	Chief Business Officer	37
Tyler Dylan-Hyde, Ph.D.	Chief Legal Officer	54
Kala Subramanian, Ph.D.	Senior Vice President, Strategic Development and Operations	49
Non-Executive Directors		
N. Anthony Coles, M.D.(2)	Chairman and Director	56
Bradley Bolzon, Ph.D.	Director	56
Ali Behbahani, M.D.(1)	Director	40
Kurt von Emster(1)	Director	49
Simeon J. George, M.D.(1)(2)	Director	39
Thomas Woiwode, Ph.D.(2)	Director	44
Pablo Cagnoni, M.D.(2)	Director	53

(1) Member of the Audit Committee.
(2) Member of the Compensation, Nomination and Corporate Governance Committee.

The following includes a brief biography for each of our executive officers and directors, with each director biography including information regarding the experiences, qualifications, attributes or skills that caused our board of directors to determine that each member of our board of directors should serve as a director as of the date of this prospectus. There are no family relationships among any of our executive officers or directors.

Executive Officers

Rodger Novak, M.D., Co-Founder, Chief Executive Officer and Director: Dr. Novak co-founded CRISPR Therapeutics AG in November 2013, and has served as a director on our board of directors since inception. Prior to joining our company, Dr. Novak served as Global Head Anti-infectives Research and Development at Sanofi, a pharmaceutical company. Prior to Sanofi, Dr. Novak co-founded Nabriva Therapeutics AG, a biopharmaceutical company, in January 2006, and served as its Chief Operating Officer from inception to May 2012. From March 2003 to January 2006, Dr. Novak served as the Deputy Head of the Antibiotic Research Institute at Sandoz GmbH. Dr. Novak was appointed as Professor for Microbiology at the Vienna Biocenter in March 2001. Dr. Novak received an M.D. from Philipps University of Marburg, Germany. He continued with post-doctoral work in New York City at The Rockefeller University, St. Jude Children's Research Hospital and the Skirball Institute of Biomolecular Medicine at NYU Langone Medical Center. Dr. Novak has authored numerous publications, including articles in Nature, Nature Medicine and Molecular Cell and is a co-inventor of five patents.

We believe Dr. Novak's experience as our Chief Executive Officer, as well as his experience in the biopharmaceutical industry, qualifies him to serve on our board of directors.

Marc Becker, Chief Financial Officer: Mr. Becker has served as our Chief Financial Officer since February 2016. Prior to joining our company, Mr. Becker served as Senior Vice President and Chief Financial Officer at rEVO Biologics, Inc., a biopharmaceutical company, from June 2012 to February 2016. Prior to that,

Mr. Becker served various roles at Genzyme Corporation, a biotechnology company, from 2001 to 2011, most recently serving as the Vice President of Finance for the renal and endocrine business unit. Mr. Becker has also held various positions at KPMG LLP and BankBoston (now part of Bank of America). Mr. Becker received an M.B.A. from Babson College and a B.S. in Business Administration from the University of Massachusetts and was licensed as a certified public accountant.

Sven Ante (Bill) Lundberg, M.D., Chief Scientific Officer: Dr. Lundberg has served as our Chief Scientific Officer since February 2015. Prior to joining our company, Dr. Lundberg was Vice President and Head of Translational Medicine at Alexion Pharmaceuticals, Inc., or Alexion, a biopharmaceutical company, from March 2011 to January 2015. From March 2010 to January 2011, Dr. Lundberg was Chief Medical Officer at Taligen Therapeutics, Inc., a biotechnology company that was acquired by Alexion in January 2011, and Vice President of Clinical Development at Antisoma Plc, or Antisoma, from May 2008 to March 2010. Dr. Lundberg also served as Vice President of Clinical Development at Xanthus Pharmaceuticals, Inc. from 2004 until it was acquired by Antisoma in 2008. Previous to that, Dr. Lundberg served as the Medical Director at Wyeth (acquired by Pfizer Inc. in January 2009) and Medical Director at Genzyme Corporation. Dr. Lundberg received an M.D. from Stanford University School of Medicine, an M.B.A. from the Isenberg School of Management at the University of Massachusetts – Amherst, and a B.S. in Biology from the Massachusetts Institute of Technology, or MIT. He completed post-doctoral work at the Whitehead Institute for Biomedical Research at MIT.

Samarth Kulkarni, Ph.D., Chief Business Officer: Dr. Kulkarni has served as our Chief Business Officer since August 2015. Prior to joining our company, Dr. Kulkarni was at McKinsey & Company from 2006 to July 2015, with various titles, his most recent being Partner within the Pharmaceuticals and Biotechnology practice. Dr. Kulkarni received a Ph.D. in Bioengineering and Nanotechnology from the University of Washington and a B. Tech. from the Indian Institute of Technology. Dr. Kulkarni has authored several publications in leading scientific and business journals.

***Tyler Dylan-Hyde, Ph.D., Chief Legal Officer*:** Dr. Dylan-Hyde has served as our Chief Legal Officer since January 2015. Prior to joining our company, Dr. Dylan-Hyde was the Chief Business Officer and General Counsel of Taxus Cardium Partners Group (formerly Cardium Therapeutics, Inc.), from October 2005 to December 2014, and has served as a member of the board of directors since October 2005. Dr. Dylan-Hyde also served as the Chief Business Officer and General Counsel, and a member of the Board of Directors of Tissue Repair Company from August 2006 to November 2014. Prior to that, Dr. Dylan-Hyde was Vice President and General Counsel at Collateral Therapeutics, Inc. (acquired by Schering AG (now Bayer Healthcare Pharmaceuticals) in March 2002), Chief Business Officer and General Counsel at InnerCool Therapies Inc. (acquired by Royal Philips (now ZOLL Medical Corporation) in July 2009), and a Partner at Morrison & Foerster LLP, where he specialized in intellectual property, licensing and corporate transactions. Dr. Dylan-Hyde received a J.D. from the University of California, Berkeley, School of Law, a Ph.D. in Biology from the University of California, San Diego, and a B.Sc. in Cell, Molecular and Developmental Biology from McGill University.

Kala Subramanian, Ph.D., Senior Vice President, Strategic Development and Operations: Dr. Subramanian has served as our Senior Vice President Strategic Development and Operations (Chief of Staff) since June 2016. Prior to joining our company, Dr. Subramanian served as Global Head of Strategic Development & Program Management in Oncology Development at Novartis Pharmaceutical Corporation, from December 2003 to June 2016. Prior to that, Dr. Subramanian served as Senior Project Manager at Millennium Pharmaceuticals, from May 2001 to December 2003. Dr. Subramanian also served as Senior Consultant at Accenture Consulting, from May 1998 to April 2001. Dr. Subramanian received a Ph.D. in Chemistry from Cornell University and a M.Sc. in Chemistry from Indian Institute of Technology, Madras (India). She completed post-doctoral work at Duke University Medical Center.

Non-Employee Directors

N. Anthony Coles, M.D., Chairman and Director: Dr. Coles has served on our board of directors since October 2015 as a director and chairman. Dr. Coles also has served as Chief Executive Officer of Yumanity

Therapeutics, LLC, a biopharmaceutical company, since October 2014, and as a member of the board of directors of McKesson Corporation, a health care company, since April 2014. From October 2013 to October 2014, Dr. Coles served as Chief Executive Officer of TRATE Enterprises LLC, a privately held company. Dr. Coles also served as President, Chief Executive Officer and member of the board of directors of Onyx Pharmaceuticals, Inc., or Onyx, a biopharmaceutical company, from March 2008 to October 2013, and served as its Chairman since 2012. Prior to joining Onyx, Dr. Coles was President, Chief Executive Officer and a member of the board of directors of NPS Pharmaceuticals, Inc., or NPS, a biopharmaceutical company from November 2005 to March 2008. In addition, Dr. Coles formerly served as a member of the board of directors of Laboratory Corporation of America Holdings, a clinical and specialty testing laboratory company, from December 2010 to March 2012, and Campus Crest Communities, Inc., a real estate investment trust, from October 2010 to March 2012. Dr. Coles has served on the board of Campus Crest Communities, Inc., a public student housing company. Dr. Coles also serves as a trustee and member of the Executive Committee for the Johns Hopkins University Board of Trustees, as well as a member of the board of trustees for Johns Hopkins Medicine. Dr. Coles received an M.D. from Duke University, an M.P.H. from Harvard University, and a B.S. in Natural Sciences from Johns Hopkins University. We believe Dr. Cole's experience in the biopharmaceutical industry, as well as his experience as a member on the boards of directors of multiple companies in the industry, qualifies him to serve as Chairman of our board of directors.

Bradley Bolzon, Ph.D., Director: Dr. Bolzon has served on our board of directors since November 2013. Dr. Bolzon currently serves as a Managing Director of Versant Venture Management, LLC, where he has been employed since May 2004. Additionally, Dr. Bolzon served as a member of the board of directors of Flexion Therapeutics, Inc., a pharmaceutical company, from its inception in 2007 to June 2014. From February 2000 to May 2004, Dr. Bolzon served as Executive Vice President, Global Head of Business Development, Licensing & Alliances of F. Hoffman-La Roche Ltd., a pharmaceutical company. Dr. Bolzon also formerly served as Head of Cardiovascular Research at Eli Lilly and Company. Dr. Bolzon received a Ph.D. in Pharmacology and an M.S. in Pharmacology from the University of Toronto. He continued with post-doctoral work at the University of Ottawa Heart Institute. We believe Dr. Bolzon's experience in the biopharmaceutical industry qualifies him to serve on our board of directors.

Ali Behbahani, M.D., M.B.A., Director: Dr. Behbahani has served on our board of directors since April 2015. Dr. Behbahani joined New Enterprise Associates, Inc., or NEA, in 2007 and is a Partner on the healthcare team. Dr. Behbahani has also served as a member of the board of directors of Nevro Corp., a medical device company, since August 2014 and Adaptimmune Therapeutics, a biopharmaceutical company, since September 2014. Prior to joining NEA, Dr. Behbahani served as a consultant in business development at The Medicines Company, a pharmaceutical company. In addition, Dr. Behbahani formerly served as a Venture Associate at Morgan Stanley and as a Healthcare Investment Banking Analyst at Lehman Brothers. Dr. Behbahani received an M.D. from the University of Pennsylvania School of Medicine, an M.B.A. from the Wharton School of the University of Pennsylvania and a B.S. in Biomedical Engineering, Electrical Engineering and Chemistry from Duke University. We believe Dr. Behbahani's experience in the biopharmaceutical industry, as well as his experience as a member on the boards of directors of multiple companies in the industry, qualifies him to serve on our board of directors.

Simeon J. George, M.D., Director: Dr. George has served on our board of directors since April 2015. Dr. George currently serves as a Partner at S.R. One, Limited, where he has been employed since 2007. In addition, Dr. George previously served as a director on the boards of the following biotechnology companies: Semprus BioSciencies Corp. (acquired by Teleflex Incorporated in June 2012) from December 2010 to June 2012, HTG Molecular Diagnostics, Inc. from June 2011 to October 2015, and Genocea Biosciences, Inc. from July 2010 to December 2014. Dr. George also served as a consultant at Bain & Company from October 2006 to August 2007. Dr. George received an M.D. from the University of Pennsylvania School of Medicine, an M.B.A. from the Wharton School of the University of Pennsylvania, and a B.A. in Neuroscience from Johns Hopkins University. We believe Dr. George's experience in the biopharmaceutical industry, as well as his experience as a member on the boards of directors of multiple companies in the industry, qualifies him to serve on our board of directors.

Kurt von Emster, CFA, Director: Mr. von Emster has served on our board of directors since April 2015. Mr. von Emster currently serves as Managing Partner at Abingworth LLP, where he has been employed as a Partner since January 2015. Mr. von Emster also has served as a member of the board of directors of SutroVax, a biopharmaceutical vaccine company, since July 2015 where he is currently Chairman, Kesios Therapeutics, a biotherapeutics company, since November 2015, and CymaBay Therapeutics, Inc., a biotechnology company, since April 2009. Mr. von Emster previously served on the board of directors of the following companies: Cytos Biotechnology AG from November 2012 to January 2016 (merged and renamed Kuros Biosciences in January 2016), Aurinia Pharmaceuticals Inc. from February 2014 to March 2015, Facet Biotech Corporation (acquired by Abbott Laboratories in April 2010) from February 2009 to April 2010, and Somaxon Pharmaceuticals (acquired by Pernix Therapeutics in March 2013) from September 2005 to January 2013. In addition, Mr. von Emster co-founded venBio LLC, a health-care focused investment firm, in 2009, and served as Partner until 2014. Prior to that, Mr. von Emster was General Partner at MPM Capital, Inc., a biotechnology private equity firm, from 2001 to 2009. Mr. von Emster was also a Biotechnology and Healthcare Analyst and Portfolio Manager at Franklin Templeton Group from 1989 to 2000. Mr. von Emster received a B.S. in Business and Economics from the University of California, Santa Barbara and is a Chartered Financial Analyst, or CFA. We believe Mr. von Emster's experience in the biotechnology industry, as well as his experience as a member on the boards of directors of multiple companies in the industry, qualifies him to serve on our board of directors.

Thomas F. Woiwode, Ph.D., Director: Dr. Woiwode has served on our board of directors since April 2014. Dr. Woiwode joined Versant Venture Management, LLC, or Versant, in 2002 and has served as a Venture Partner since 2011 and as a Managing Director since July 2014. Dr. Woiwode also has served on the board of directors of Audentes Therapeutics, Inc., a biotechnology company, since July 2013. Dr. Woiwode previously served as the Chief Operating Officer of Okairos, a biopharmaceutical company acquired by GlaxoSmithKline plc in May 2013, from July 2011 to May 2013. In addition, Dr. Woiwode co-founded Euroventures, a wholly owned biotechnology incubator within Versant, and in this role, served as the founding Chief Business Officer of three biotech companies created within Versant. Dr. Woiwode received a Ph.D. in Organic Chemistry at Stanford University and a B.A. in English and a B.S. in Chemistry from the University of California, Berkeley. We believe Dr. Woiwode's experience in the biotechnology industry, as well as his experience as a member on the boards of directors of multiple companies in the industry, qualifies him to serve on our board of directors.

Pablo Cagnoni, M.D., Director: Dr. Cagnoni has served on our board of directors since December 2015. Dr. Cagnoni has also served as Managing Director of MPM Capital, Inc, since May 2015. In addition, Dr. Cagnoni has served as President and Chief Executive Officer of Tizona Pharmaceuticals, Inc., a biotechnology company, since May 2015. Dr. Cagnoni previously served as President of Onyx Pharmaceuticals, Inc. from October 2013 to April 2015, and as Executive Vice President, Global Research and Development and Technical Operations from April 2013 to October 2013. Dr. Cagnoni also served in management roles at the following biotechnology companies: Senior Vice President and Global Head of Clinical Development at Novartis AG from October 2009 to April 2013, Senior Vice President and Chief Medical Officer at Allos Therapeutics, Inc. from March 2007 to September 2009, and Chief Medical Officer and Vice President of Clinical Research and Medical Affairs at OSI Pharmaceuticals, Inc. from July 2004 to March 2007. Dr. Cagnoni was also Assistant Professor of Medicine and Assistant Director Pharmacology Laboratory at the University of Colorado Bone Marrow Transplant Program. Dr. Cagnoni received an M.D. from the University of Buenos Aires School of Medicine. He continued with post-doctoral work in Hematology and Oncology at the Mount Sinai Medical Center and in Stem Cell Transplantation at the University of Colorado Health Sciences Center. We believe Dr. Cagnoni's experience in the biotechnology industry qualifies him to serve on our board of directors.

Scientific Advisory Board

Emmanuelle Marie Charpentier, Ph.D.: Dr. Charpentier is one of our co-founders. Dr. Charpentier is a Scientific Member of the Max Planck Society in Germany, Director at the Max Planck Institute for Infection Biology and an Alexander von Humboldt Professor at the Helmholtz Centre for Infection Research, Braunschweig. Dr. Charpentier also oversees a research group at the Laboratory for Molecular Infection

Medicine Sweden at Umeå University. She has held research associate positions at The Rockefeller University, New York University Langone Medical Center, the Skirball Institute of Biomolecular Medicine and the St. Jude Children's Research Hospital. Dr. Charpentier's research unveiled the key mechanisms of the CRISPR/Cas9 technology, laying the foundation for CRISPR/Cas9 as a gene editing tool. She has received over 25 awards for her work on CRISPR/Cas9, including the Breakthrough Prize in Life Sciences and the Massry Prize. In 2015, Dr. Charpentier was recognized by TIME Magazine as one of the 100 most influential people.

Daniel Anderson, Ph.D.: Dr. Anderson is an Associate Professor in Chemical Engineering, the Institute for Medical Engineering and Science and the Harvard-MIT Division of Health Science and Technology at the Massachusetts Institute of Technology, or MIT. He is also an intramural member of the Koch Institute for Integrative Cancer Research at MIT and an associate of the Ragon Institute. Dr. Anderson is widely recognized as a leader in the development of biomaterials, and his work has led to applications in medical devices, cosmetics, cell therapy and drug therapy. The advanced drug delivery systems developed in his laboratory have provided new methods for gene therapy and gene editing, including the first description of using the CRISPR/Cas9 system to repair a disease gene in an adult animal.

Stephen Elledge, Ph.D.: Dr. Elledge is the Gregor Mendel Professor of Genetics and Medicine at Harvard Medical School and Brigham and Women's Hospital. Dr. Elledge was named an Investigator with the Howard Hughes Medical Institute in 1993. Dr. Elledge is a leading authority on the mechanisms of DNA repair that are essential to CRISPR/Cas9 gene editing approaches and has published over 250 articles, including contributions to the study of proteins and biochemical pathways that regulate the cell division cycle, how cells sense and respond to DNA damage, how cells selectively destroy proteins in response to signals and how these pathways are usurped in human cancer. Dr. Elledge has received numerous awards including the 2015 Albert Lasker Basic Medical Research Award.

Craig Mello, Ph.D.: Dr. Mello is a Professor of the RNA Therapeutics Institute at the University of Massachusetts Medical School and the Blais University Chair in Molecular Medicine. Dr. Mello was named an Investigator at the Howard Hughes Medical Institute in 2000. Dr. Mello is a discoverer of RNA interference (RNAi) and its gene silencing capabilities and with Dr. Andrew Fire received the 2006 Nobel Prize in Physiology or Medicine for such invention. Dr. Mello is a member of the National Academy of Sciences, the American Academy of Arts and Sciences and the American Philosophical Society.

Matthew Porteus, M.D., Ph.D.: Dr. Porteus is an Associate Professor of Pediatrics in the Department of Pediatrics, Divisions of Hematology/Oncology and Human Gene Therapy at Stanford School of Medicine and previous to that, he was an Assistant Professor of Pediatrics and Biochemistry at the University of Texas Southwestern Medical School. Dr. Porteus is an Attending Physician for the Pediatric Bone Marrow Transplant Service at Lucille Packard Children's Hospital. Dr. Porteus trained with Dr. David Baltimore at the Massachusetts Institute of Technology and the California Institute of Technology. During this time, he was the first to show that engineered nucleases could be used to precisely modify human cells by homologous recombination. Dr. Porteus' research focuses on developing homologous recombination-based therapies for genetic and other diseases and he was the first person to use DNA endonuclease technology for gene editing.

Board Composition and Election of Directors After This Offering

Our board of directors is composed of seven members. Each director is elected for a one-year term. The current members of our board of directors were appointed at shareholders' meetings held on October 9, 2015 and December 8, 2015 to serve until the next ordinary shareholders' meeting.

Following the closing of this offering, our compensation, nomination and corporate governance committee and board of directors may consider a broad range of factors relating to the qualifications and background of nominees, which may include diversity and is not limited to race, gender or national origin. We have no formal policy regarding board diversity. Our compensation, nomination and corporate governance committee's and board of directors' priority in selecting board members is identification of persons who will further the interests

of our company through his or her established record of professional accomplishment, the ability to contribute positively to the collaborative culture among board members, and professional and personal experiences and expertise relevant to our growth strategy.

Director Independence

Under the listing requirements and rules of the NASDAQ Global Market, independent directors must comprise a majority of our board of directors as a listed company within one year of the closing of this offering.

Our board of directors has undertaken a review of its composition, the composition of its committees and the independence of each director. Based upon information requested from and provided by each director concerning his background, employment and affiliations, including family relationships, our board of directors has determined that N. Anthony Coles, Ali Behbahani, Kurt von Emster, Simeon J. George, Bradley Bolzon, Thomas Woiwode and Pablo Cagnoni do not have any relationships that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is "independent" as that term is defined under the applicable rules and regulations of the Securities and Exchange Commission, or the SEC, and the listing requirements and rules of the NASDAQ Global Market. In making this determination, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director.

Committees of the Board of Directors

Our board of directors has two standing committees: (1) an audit committee and (2) a compensation, nomination and corporate governance committee.

Audit Committee

Our audit committee consists of Kurt von Emster, Ali Behbahani and Simeon J. George. Our board of directors has determined that Kurt von Emster, Ali Behbahani and Simeon J. George are independent under the NASDAQ listing standards and Rule 10A-3(b)(1) of the Securities Exchange Act of 1934, as amended, or the Exchange Act. The chair of our audit committee is Kurt von Emster. Our board of directors has determined that Kurt von Emster is an "audit committee financial expert" within the meaning of SEC regulations. Our board of directors has also determined that each member of our audit committee can read and understand fundamental financial statements in accordance with applicable requirements. In arriving at these determinations, the board of directors has examined each audit committee member's scope of experience and the nature of their employment in the corporate finance sector.

The audit committee will be governed by a charter that complies with NASDAQ rules. Upon the completion of this offering, the audit committee has the responsibility to, among other things:

- review and assess the qualifications, independence, performance and effectiveness of the independent auditor;
- review the scope of the prospective audit by the independent auditor, the estimated fees, and any other matters pertaining to the audit;
- approve any audit and non-audit services proposed to be provided by the independent auditor to ensure independent auditor independence;
- review and assess the independent auditor's report, management letters and take notice of all comments of the independent auditor on accounting procedures and systems of control, and review the independent auditor's reports with management;

- be responsible for the resolution of disagreements between the management and the independent auditor;
- review and evaluate the lead audit partner of the independent audit team and confirm and evaluate their rotation;
- review, discuss with the chief financial officer and the independent auditor and approve (i) the annual and quarterly financial statements, (ii) reports intended for publication and (iii) any other financial statements intended for publication to consider significant financial reporting issues and judgments made in connection with the preparation of our financial statements, including any significant changes in our selection or application of accounting principles;
- review with the management, personnel responsible for the design and implementation of the internal audit function and the independent auditor in separate meetings any analysis or other written communication prepared by the management and/or the independent auditor setting forth significant financial reporting issues and judgments made in connection with the preparation of the financial statements, including critical accounting policies, the effect of regulatory and accounting initiatives, as well as off-balance sheet transactions and structures on our financial statements;
- review and approve our quarterly financial statements for the first three quarters of each calendar year and the corresponding financial results releases;
- review in cooperation with the independent auditor and the management whether the accounting principles applied are appropriate in view of our size and complexity;
- periodically review our policies and procedures for risk management and assess the effectiveness thereof including discussing with management our major financial risk exposures and the steps that have been taken to monitor and control such exposures;
- discuss with management and external advisors any legal matters that may have a material impact on our financial statements and any material reports or inquiries from regulatory or governmental agencies which could materially impact our contingent liabilities and risks;
- review our disclosure controls and procedures and internal control over financial reporting which shall include significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting;
- recommending, based upon its review and discussions with management and the independent registered public accounting firm, whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- preparing the audit committee report required by the rules of the SEC to be included in our annual proxy statement;
- establish procedures for the receipt, retention and treatment of complaints received regarding accounting, internal accounting controls or auditing matters, and the confidential, anonymous submission by employees of concerns regarding questionable accounting or auditing matters; and
- recommend to the board whether to approve and ratify any related person transaction in accordance with our related person transaction policy.

The audit committee will meet as often as it determines is appropriate to carry out its responsibilities, but in any event will meet at least four times per year.

Compensation, Nomination and Corporate Governance Committee

Our compensation, nomination and corporate governance committee consists of Thomas Woiwode, Simeon J. George, Pablo Cagnoni and N. Anthony Coles. Our board of directors has determined that Thomas Woiwode, Simeon J. George, Pablo Cagnoni and N. Anthony Coles are independent under the NASDAQ listing standards,

are “non-employee directors” as defined in Rule 16b-3 promulgated under the Exchange Act and are “outside directors” as that term is defined in Section 162(m) of the Internal Revenue Code of 1986, as amended, or Section 162(m). The chair of our compensation, nomination and corporate governance committee is Thomas Woiwode. The committee will assist our board of directors in overseeing our cash compensation and equity award recommendations for our executive officers along with the rationale for such recommendations, as well as summary information regarding the aggregate compensation provided to our executive officers. We will be subject to the Swiss Ordinance against excessive compensation in listed stock corporations, known as the “Say on Pay” Rule. This means that the members of the compensation, nomination and corporate governance committee must be elected by the shareholders’ meeting and that the compensation of our board of directors and executive officers must be presented by the board of directors to our shareholders and our shareholders must vote on the proposed compensation. The primary purpose of our compensation, nomination and corporate governance committee is to discharge the responsibilities of our board of directors to oversee our compensation policies, plans and programs and to review and determine the compensation to be paid to our executive officers, directors and other senior management, as appropriate.

In addition, this committee will also be responsible for director and board committee nominations as well as reviewing and amending, if required, our corporate governance framework and guidelines.

Upon the completion of this offering, the compensation, nomination and corporate governance committee has the responsibility to, among other things:

- review and approve, or recommend that our board of directors approve, the compensation of our executive officers;
- review and recommend to our board of directors the compensation of our directors;
- review and approve, or recommend that our board of directors approve, the terms of compensatory arrangements with our executive officers;
- administer our share and equity incentive plans;
- select independent compensation consultants and assess whether there are any conflicts of interest with any of the committees’ compensation advisers;
- review and approve, or recommend that our board of directors approve, incentive compensation and equity plans, and any other compensatory arrangements for our executive officers and other senior management, as appropriate;
- review and establish general policies relating to compensation and benefits of our employees and reviewing our overall compensation philosophy;
- identify, evaluate and select, or recommend that our board of directors approve, nominees for election to our board of directors;
- evaluate the performance of our board of directors and of individual directors;
- consider and make recommendations to our board of directors regarding the composition of the committees of the board of directors;
- review developments in corporate governance practices;
- evaluate the adequacy of our corporate governance practices and reporting;
- review management succession plans;
- develop and make recommendations to our board of directors regarding corporate governance guidelines and matters; and
- oversee an annual evaluation of the board of directors’ performance.

Compensation, Nomination and Corporate Governance Committee Interlocks and Insider Participation

None of the members of the compensation, nomination and corporate governance committee is currently, or has been at any time, one of our officers or employees. None of our executive officers currently serves, or has served during the last year, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of our board of directors or compensation, nomination and corporate governance committee.

Code of Business Conduct and Ethics

In connection with this offering, we will adopt a Code of Business Conduct and Ethics, or the Code of Conduct, that is applicable to all of our employees, executive officers and directors. Following the completion of this offering, the Code of Conduct will be available on our website www.crisprtx.com. The audit committee of our board of directors will be responsible for overseeing the Code of Conduct and will be required to approve any waivers of the Code of Conduct for employees, executive officers and directors. We expect that any amendments to the Code of Conduct, or any waivers of its requirements, will be disclosed on our website.

EXECUTIVE AND DIRECTOR COMPENSATION

Summary Compensation Table

The following table sets forth information regarding compensation awarded to, earned by or paid to each of our named executive officers during the fiscal year ended December 31, 2015.

Name	Year	Salary ($)	Bonus ($)	Share Awards ($)(1)	Option Awards ($)(1)	Non-Equity Incentive Plan Compensation ($)(2)	All Other Compensation ($)(3)	Total ($)
Rodger Novak, M.D.(4) *Chief Executive Officer*	2015	$ 356,242	—	$ 326,360	$ 820,587	$ 118,424	$ 66,968	$ 1,688,581
Sven Ante Lundberg, M.D. *Chief Scientific Officer*	2015	$ 302,605	$ 38,356(5)	$ 1,760,400	—	$ 90,928	$ 383,513	$ 2,575,802
Samarth Kulkarni, Ph.D. *Chief Business Officer*	2015	$ 145,833	—	$ 277,074	$ 984,708	$ 43,750	$ 152	$ 1,451,517

(1) Amounts represent the aggregate grant date fair value of stock and option awards granted to our named executive officers in 2015 computed in accordance with FASB ASC Topic 718. Pursuant to FASB ASC Topic 718, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions. For awards with award conditions, the amounts reported are based upon probable outcome, which for this purpose was determined to be the maximum level of achievement. For additional information on the valuation assumptions underlying the value of these awards, see the notes to our consolidated financial statements and discussions included elsewhere in this prospectus. The amounts above reflect our aggregate accounting expense for these awards and do not necessarily correspond to the actual value that will be recognized by the named executive officers.

(2) Amounts represent incentive compensation paid to our named executive officers for 2015 performance based upon achievement of certain corporate goals, business development objectives and research and development milestones.

(3) Amounts reported include (i) for Dr. Novak, $59,637 in pension contributions as required under Swiss law and (ii) for Dr. Lundberg, $383,513 as a bonus to purchase restricted shares and offset the tax liability associated with such purchase.

(4) The compensation paid to Dr. Novak in CHF has been converted from CHF to USD at an exchange rate of 0.9628 CHF:1 USD based on the average daily noon buying rate of exchange of the Federal Reserve Bank of New York for 2015.

(5) Amount represents a signing bonus paid to Dr. Lundberg in connection with his commencement of employment with us.

Employment Agreements with Our Named Executive Officers and Key Employees

In anticipation of the consummation of this offering we have entered into new employment agreements with each of our named executive officers, which will become effective upon the closing of this offering and replace their existing employments agreements. We designed these agreements to be part of a competitive compensation package and to keep our executive officers focused on our business goals and objectives. These agreements provide for base salaries and incentive compensation benefits, and each component reflects the scope of each named executive officer's anticipated responsibilities and the individual experience they bring to the company. In addition, these agreements have been designed to comply with certain Swiss legal requirements mandatory to public companies.

New Employment Agreements

Rodger Novak. In October 2016, we entered into a new employment agreement with Dr. Novak for the position of Chief Executive Officer, which will become effective upon the consummation of the offering. Pursuant to Dr. Novak's new employment agreement, he is entitled to an initial annual base salary in an amount

in CHF equivalent to $502,000. Dr. Novak will be eligible for annual performance bonuses based upon criteria established by our board of directors or the compensation, nomination and corporate governance committee of our board of directors. Dr. Novak's annual target bonus will initially be set at 50% of his annual base salary. In addition, Dr. Novak will be eligible to participate in our discretionary bonus scheme through equity awards, the terms and conditions of which are determined in the sole discretion of the compensation, nomination and corporate governance committee. Dr. Novak is also eligible to participate in our employee benefit plans on the same terms as other executives.

Under Dr. Novak's new employment agreement, Dr. Novak is entitled to 12 months' notice, or the notice period, in the case of a termination by us for unjustified cause or by Dr. Novak for justified cause, in each case in accordance with Swiss law and as defined in his new employment agreement. During the 12 month notice period, Dr. Novak shall continue to be entitled to all compensation under his employment agreement, and all stock options and stock based awards shall continue to vest from the date notice of termination is given until the date of termination. In addition, upon the last day of his employment (except upon termination for cause by the Company or unjustified cause by Dr. Novak), Dr. Novak shall be entitled to receive an amount equivalent to Dr. Novak's annual target bonus.

During the notice period, Dr. Novak may request to take "garden leave," in which case we will be required to release Dr. Novak from his working obligations within 15 days after receipt of such request. During this period of garden leave, Dr. Novak may enter into consulting arrangements and accept board positions with other companies. However, Dr. Novak will continue to be entitled to all compensation under his employment agreement through the garden leave period, which terminates at the end of the 12 month notice period. We also have the right to place Dr. Novak on garden leave at any time during the notice period.

If Dr. Novak's employment is terminated by us for unjustified cause or by Dr. Novak for justified cause, in each case, on or within 18 months following a change in control, all equity awards held by Dr. Novak on such date of termination will vest, or similar other restrictions will expire, and such awards become exercisable or nonforfeitable, subject to his execution of a release of any claims in favor of us. However, in the event we determine at the time of the change in control, based upon an opinion of counsel, that the acceleration described in the preceding sentence is not permissible under applicable law, all stock options and stock-based awards held by Dr. Novak as of the date of the change in control, shall vest and become exercisable or nonforfeitable as of the date of the change in control.

Dr. Sven Ante Lundberg. In October 2016, we entered into a new employment agreement with Dr. Lundberg for the position of Chief Scientific Officer, which agreement will become effective upon the consummation of the offering. Pursuant to the new employment agreement, Dr. Lundberg is entitled to an initial annual base salary in an amount equal to $350,000. Dr. Lundberg's annual target bonus will initially be set at 40% of his annual base salary. Dr. Lundberg is also eligible to participate in our employee benefit plans on the same terms as other executives.

Under Dr. Lundberg's new employment agreement, in the case of a termination by us without cause or by Dr. Lundberg for good reason (in each case, as defined under the employment agreement), he is entitled to six months' notice, or the notice period; provided, that, in the case of a notice of termination by us without cause or by Dr. Lundberg for good reason that occurs within 18 months following a change in control (and further provided that, in the event Dr. Lundberg remains employed for the first six months following a change in control, any termination thereafter by Dr. Lundberg during the remaining 18-month period shall be treated as a termination for good reason), the notice period shall be 12 months. During such notice period, and subject to Dr. Lundberg's execution of a release, Dr. Lundberg shall continue to be entitled to receive base salary, benefits and continued vesting during such period and shall be entitled to receive an amount equal to his target bonus for the year in which the termination occurs, prorated based upon the number of days in the notice period. In addition, subject to his copayment of premium amounts, Dr. Lundberg shall be entitled to receive benefits continuation following the expiration of the notice period until the earliest of (i) 18 months following the commencement of the notice period, (ii) the date Dr. Lundberg obtains full time employment with benefits substantially similar to those offered by us and (iii) the expiration of Dr. Lundberg's rights under COBRA.

During the notice period, the executive shall be placed on garden leave on the 15th day following receipt of the notice (or such earlier date as the Company shall determine in its sole discretion), and we will be required to release Dr. Lundberg from his working obligations for the remainder of the notice period. During this period of garden leave, Dr. Lundberg may enter into other employment or consulting arrangements and accept board positions with other companies. However, Dr. Lundberg will continue to be entitled to all compensation under his employment agreement through the garden leave period.

In the case of a notice of termination by us without cause or by Dr. Lundberg for good reason, in each case, on or within 18 months following a change in control (provided that in the event Dr. Lundberg remains employed for the first six months following a change in control, any termination thereafter by Dr. Lundberg during the remaining 18-month period shall be treated as a termination for good reason), all vesting or similar restrictions on any equity awards held by Dr. Lundberg will vest and become exercisable or nonforfeitable upon the date of such termination, subject to his execution of a release. However, in the event we determine at the time of the change in control, based upon an opinion of counsel, that the acceleration described in the preceding sentence is not permissible under applicable law, all stock options and stock-based awards held by Dr. Lundberg as of the date of the change in control, shall vest and become exercisable or nonforfeitable as of the date of the change in control.

Dr. Samarth Kulkarni. In October 2016, we entered into a new employment agreement with Dr. Kulkarni for the position of Chief Business Officer, which agreement will become effective upon the consummation of the offering. Pursuant to the new employment agreement, Dr. Kulkarni is entitled to an initial annual base salary in an amount equal to $360,000. Dr. Kulkarni's annual target bonus will initially be set at 40% of his annual base salary. Dr. Kulkarni is also eligible to participate in our employee benefit plans on the same terms as other executives.

Under Dr. Kulkarni's new employment agreement, in the case of a termination by us without cause or by Dr. Kulkarni for good reason (in each case, as defined under the employment agreement), he is entitled to six months' notice, or the notice period; provided, that, in the case of a notice of termination that occurs within 12 months following a change in control, the notice period shall be 12 months. During such notice period, and subject to Dr. Kulkarni's execution of a release, Dr. Kulkarni shall continue to be entitled to receive base salary, benefits and continued vesting during such period and shall be entitled to receive an amount equal to his target bonus for the year in which the termination occurs, prorated based upon the number of days in the notice period. Dr. Kulkarni shall also be entitled to receive a prorated bonus for the year in which the notice of termination is provided, prorated based upon the number of days actually worked during such year, and based upon actual performance during such year.

During the notice period, the executive shall be placed on garden leave on the 15th day following receipt of the notice (or such earlier date as the Company shall determine in its sole discretion), and we will be required to release Dr. Kulkarni from his working obligations for the remainder of the notice period. During this period of garden leave, Dr. Kulkarni may enter into other employment or consulting arrangements and accept board positions with other companies. However, Dr. Kulkarni will continue to be entitled to all compensation under his employment agreement through the garden leave period.

In the case of a notice of termination by us without cause or by Dr. Kulkarni for good reason, in each case, on or within two months prior or 12 months following a change in control, or in the case Dr. Kulkarni delivers a notice of termination for any reason not sooner than six months after the occurrence of a change in control, all vesting or similar restrictions on any equity awards held by Dr. Kulkarni will vest and become exercisable or nonforfeitable upon the date of such termination, subject to his execution of a release. However, in the event we determine at the time of the change in control, based upon an opinion of counsel, that the acceleration described in the preceding sentence is not permissible under applicable law, all stock options and stock-based awards held by Dr. Kulkarni as of the date of the change in control, shall vest and become exercisable or nonforfeitable as of the date of the change in control.

Marc Becker. In October 2016, we entered into a new employment agreement with Mr. Becker for the position of Chief Financial Officer, which agreement will become effective upon the consummation of the offering. Pursuant to the new employment agreement, Mr. Becker is entitled to an initial annual base salary in

an amount equal to $350,000. Mr. Becker's annual target bonus will initially be set at 40% of his annual base salary. Mr. Becker is also eligible to participate in our employee benefit plans on the same terms as other executives.

Under Mr. Becker's new employment agreement, in the case of a termination by us without cause or by Mr. Becker for good reason (in each case, as defined under the employment agreement), he is entitled to six months' notice, or the notice period; provided, that, in the case of a notice of termination by us without cause or by Mr. Becker for good reason that occurs within 12 months following a change in control, the notice period shall be 12 months. During such notice period, and subject to Mr. Becker's execution of a release, Mr. Becker shall continue to be entitled to receive base salary, benefits and continued vesting during such period and shall be entitled to receive an amount equal to his target bonus for the year in which the termination occurs, prorated based upon the number of days in the notice period.

During the notice period, the executive shall be placed on garden leave on the 15th day following receipt of the notice (or such earlier date as the Company shall determine in its sole discretion), and we will be required to release Mr. Becker from his working obligations for the remainder of the notice period. During this period of garden leave, Mr. Becker may enter into other employment or consulting arrangements and accept board positions with other companies. However, Mr. Becker will continue to be entitled to all compensation under his employment agreement through the garden leave period.

In the case of a notice of termination by us without cause or by Mr. Becker for good reason, in each case, that occurs on or within 12 months following a change in control, all vesting or similar restrictions on any equity awards held by Mr. Becker will vest and become exercisable or nonforfeitable upon the date of such termination, subject to his execution of a release. However, in the event we determine at the time of the change in control, based upon an opinion of counsel, that the acceleration described in the preceding sentence is not permissible under applicable law, all stock options and stock-based awards held by Mr. Becker as of the date of the change in control, shall vest and become exercisable or nonforfeitable as of the date of the change in control.

Prior Agreements

Dr. Rodger Novak. We entered into an employment agreement with Dr. Novak in November 2013, for the position of Chief Executive Officer. Pursuant to Dr. Novak's employment agreement, he was entitled to an initial annual base salary of CHF 350,000, which was increased to CHF 410,000 effective September 1, 2015. Dr. Novak is eligible for annual performance bonuses. Dr. Novak's annual target bonus was initially set at 30% of his annual base salary. Under Dr. Novak's employment agreement, Dr. Novak is entitled to three months' notice if his employment is terminated without just cause in accordance with Swiss law.

Dr. Sven Ante Lundberg. We entered into an employment agreement with Dr. Lundberg in February 2015, for the position of Chief Scientific Officer. Pursuant to Dr. Lundberg's employment agreement, he is entitled to an initial annual base salary of $350,000 and received a one-time starting bonus of $38,356. Dr. Lundberg is eligible for annual performance bonuses based upon criteria established by our Chief Executive Officer and Dr. Lundberg. Dr. Lundberg's annual target bonus was initially set at 30% of his annual base salary. Dr. Lundberg also purchased 450,000 of our restricted common shares. Of this total amount, 400,000 restricted shares are subject to a right of repurchase by us that will lapse ratably in monthly installments beginning on March 1, 2015 and ending on the fourth anniversary of the commencement date of Dr. Lundberg's employment, subject to Dr. Lundberg's continued employment with us. The remaining 50,000 restricted shares are also subject to a right of repurchase by us beginning on or within 60 days following the earlier to occur of (i) the termination of Dr. Lundberg's employment with us and (ii) August 18, 2016. The repurchase rights applicable to the 50,000 restricted shares will lapse upon the achievement of specified performance metrics set forth in the employment agreement. Additionally, Dr. Lundberg was granted a one-time special purpose bonus in cash equal to the aggregate purchase price of his restricted shares. Dr. Lundberg is eligible to participate in our employee benefit plans on the same terms as other senior executives.

Dr. Lundberg's employment agreement further provides that in the event his employment is terminated without "cause," as defined in his employment agreement, or he terminates his employment for "good reason," as defined in his employment agreement, he is entitled to receive (i) an amount equal to 50% of his base salary and 50% of his target bonus and (ii) copayment of Dr. Lundberg's COBRA premiums until the earlier of (1) 18 months following the termination, (2) the date Dr. Lundberg obtains full time employment and (3) the expiration of Dr. Lundberg's rights under COBRA. In addition, all vesting or similar restrictions on any equity awards held by Dr. Lundberg that would have vested or the restrictions would otherwise have lapsed during the six month period following the date of Dr. Lundberg's termination shall vest and become exercisable or nonforfeitable.

In the event that Dr. Lundberg is (i) terminated within 18 months following a change in control without "cause" or (ii) he terminates his employment for any reason within 18 months following a change in control and after remaining employed by us (or our successor) for six months following a change of control, then Dr. Lundberg shall be entitled to receive (i) an amount equal to one times his base salary and target bonus and (ii) copayment of Dr. Lundberg's COBRA premiums until the earlier of (1) 18 months following the termination, (2) the date Dr. Lundberg obtains full time employment and (3) the expiration of Dr. Lundberg's rights under COBRA. In addition, all of the restricted shares and options granted to Dr. Lundberg will accelerate and vest in full. To the extent Section 280G of the Internal Revenue Code of 1986, as amended, is applicable to such change in control, Dr. Lundberg will be entitled to receive the better treatment of: (i) payment of the full amounts set forth above to which he is entitled or (ii) payment of such lesser amount that does not trigger excise taxes under Section 280G.

Dr. Samarth Kulkarni. We entered into an employment agreement with Dr. Kulkarni in July 2015, for the position of Chief Business Officer. Pursuant to Dr. Kulkarni's employment agreement, he is entitled to an initial annual base salary of $350,000. Dr. Kulkarni is eligible for annual performance bonuses based upon criteria established by our board. Dr. Kulkarni's annual target bonus was initially set at 30% of his annual base salary. Dr. Kulkarni also was issued 134,047 restricted shares, with 25% of such restricted shares vesting at the one year anniversary of Dr. Kulkarni's commencement of employment, and 1/36 of such restricted shares vesting each month thereafter. In addition to the restricted shares, Dr. Kulkarni was granted an option to purchase 321,712 common shares. Of these, 268,096 shares under the option are subject to time-based vesting, with 25% of the shares vesting at the one year anniversary of Dr. Kulkarni's commencement of employment, and 1/36 of the shares vesting each month thereafter. The remaining 53,616 shares under the option are subject to performance based vesting that vest at the one year commencement of Dr. Kulkarni's employment, subject to the achievement of specified performance metrics. The offer letter also provided Dr. Kulkarni up to $70,000 of expense reimbursement in connection with his relocation to the greater Boston, Massachusetts area and five months of temporary housing. Dr. Kulkarni is eligible to participate in our employee benefit plans on the same terms as other regular, full-time employees.

Dr. Kulkarni's employment agreement further provides that in the event his employment is terminated without "cause," as defined in his employment agreement, or he terminates his employment for "good reason," as defined in his employment agreement, he is entitled to receive his then monthly base salary and target bonus until the earlier of (i) six months following the termination or (2) the date Dr. Kulkarni commences full time employment. In addition, any reacquisition or repurchase rights we hold with respect to the options granted to Dr. Kulkarni pursuant to the employment agreement shall lapse for the portion of such equity awards which would otherwise have vested during the six month period following the date of Dr. Kulkarni's termination.

In the event that Dr. Kulkarni is (i) terminated (A) within 18 months following or (B) three months prior to a change in control without "cause" or (ii) he terminates his employment after six months following a change of control for "good reason," then all of the options granted to Dr. Kulkarni pursuant to his employment agreement will vest in full.

Marc Becker. We entered into an employment agreement with Mr. Becker in January 2016, for the position of Chief Financial Officer. Pursuant to Mr. Becker's employment agreement, he is entitled to an initial

annual base salary of $330,000 and received a one-time starting bonus of $101,500. Mr. Becker is eligible for annual performance bonuses based upon criteria established by our board. Mr. Becker's annual target bonus was initially set at 30% of his annual base salary. Mr. Becker was also granted an option to purchase 281,926 common shares. The options are time-based options, with 25% of the option vesting at the one year anniversary of Mr. Becker's commencement of employment, and 1/36 of the remaining option vesting each month thereafter. Mr. Becker is eligible to participate in our employee benefit plans on the same terms as other senior executives.

Mr. Becker's employment agreement further provides that in the event his employment is terminated without "cause," as defined in his employment agreement, or he terminates his employment for "good reason," as defined in his employment agreement, he is entitled to receive half of his then current base salary and half of his target bonus, paid equally over a six-month period following the termination. In addition, any vesting with respect to the options granted to Mr. Becker pursuant to his employment agreement shall lapse for the portion of such equity awards as to which such reacquisition or repurchase rights would have otherwise vested during the six month period following the date of Mr. Becker's termination.

In the event that Mr. Becker is (i) terminated within twelve months following a change in control without "cause" or (ii) he terminates his employment after twelve months following a change of control for "good reason," then all of the options granted to Mr. Becker pursuant to his employment agreement will vest in full. In addition, Mr. Becker would be entitled to receive a one-time payment equal to his then current base salary plus his target bonus.

Employee Confidentiality, Non-Competition, Non-solicitation And Assignment Agreements

Each of our named executive officers has entered into agreements with respect to confidential information and assignment of inventions. Among other things, this agreement obligates each named executive officer to refrain from disclosing any of our proprietary information received during the course of employment and to assign to us any inventions conceived or developed during the course of employment. In addition, our named executive officers are also subject to certain non-competition and/or non-solicitation obligations as set forth in their respective employment agreements.

Indemnification Agreements

In connection with this offering, we have entered into indemnification agreements with each of our directors and executive officers. See the section of this prospectus titled "Description of Share Capital and Articles of Association—Indemnification of Executive Management and Directors."

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling us pursuant to the foregoing provisions, we have been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

2015 Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information concerning outstanding equity awards for each of our named executive officers at December 31, 2015:

		Option Awards(1)				Stock Awards(1)			
Name	Vesting Commencement Date	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (#)(2)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ($)(2)
Rodger Novak, M.D.	9/10/2015	111,703(3)	156,390(3)	1.85	9/10/2025	—	—	—	—
Sven Ante Lundberg, M.D.	2/18/2015	—	—	—	—	366,667(4)(5)	$ 2,110,900	50,000(5)(6)	$ 287,850
Samarth Kulkarni, Ph.D.	8/1/2015	0	53,616(7)(8)	1.85	9/10/2025	—	—	—	—
	8/1/2015	0	268,096(4)(8)	1.85	9/10/2025	—	—	—	—
	8/1/2015	—	—	—	—	134,047(4)(8)	$ 771,707	—	—

(1) Except in the case of Dr. Lundberg's restricted shares, each award was granted pursuant to our 2015 Stock Option and Grant Plan. Unless otherwise specified below, each award vests with respect to 25% of the shares on the first anniversary of the vesting commencement date and the remaining 75% vests in equal monthly installments over the next three years thereafter, subject to continuous service through each such date.

(2) The market value is calculated by multiplying the number of unvested shares by $5.76, which was the fair market value of the Company's common shares as of December 31, 2015.

(3) This option was vested with respect to 94,947 of the shares subject to the option as of the vesting commencement date, with the remaining 173,146 shares subject to the option vesting ratably over 31 months thereafter, subject to continuous service through each such date.

(4) If the executive's employment is terminated without cause or he resigns for good reason, subject to delivery of a release, this award shall accelerate and vest as if such executive had remained employed for an additional six months.

(5) In the case of a change in control, this award shall accelerate and vest in full if (i) the executive's employment is terminated without cause within 18 months following such change in control or (ii) the executive resigns after six months following such change in control.

(6) This restricted share award is subject to vesting upon achievement of certain performance criteria on or prior to August 18, 2016. If Dr. Lundberg's employment is terminated without cause or he resigns for good reason prior to such date, then a number of shares equal to the number of then-unvested shares (which have not otherwise been forfeited) as of such date, multiplied by a fraction, the numerator of which is the lesser of 180 days or the number of days remaining until August 18, 2016, and the denominator of which is the number of days remaining until August 18, 2016.

(7) 100% of the shares subject to this option vest and become exercisable as of the vesting commencement date, provided that certain performance criteria have been met as of July 31, 2016 and Dr. Kulkarni continues to have a service relationship with us as of such date. As of December 31, 2015, the applicable performance criteria had been met. If Dr. Kulkarni's employment is terminated without cause or he resigns for good reason on or after February 1, 2016 and prior to August 1, 2016, subject to delivery of a release, then 100% of this option shall vest and become exercisable as of the effectiveness of such release.

(8) In the case of a change in control, this award shall accelerate and vest in full if (i) the executive's employment is terminated without cause within 18 months following such change in control, (ii) the

executive's employment is terminated without cause after we have taken substantial steps to negotiate a change in control agreement and such change in control actually occurs within three months thereafter or (iii) the executive resigns after six months following such change in control.

Director Compensation

The following table sets forth a summary of the compensation we paid to our nonemployee directors during 2015. Other than as set forth in the table and described more fully below, we did not pay any compensation, reimburse any expense of, make any equity awards or non-equity awards to, or pay any other compensation to any of the other nonemployee members of our board of directors in 2015. We reimburse nonemployee directors for reasonable travel expenses. Dr. Novak, our Chief Executive Officer, receives no compensation for his service as a director, and, consequently, is not included in this table. The compensation received by Dr. Novak as an employee during 2015 is presented in the "Summary Compensation Table" above.

Name	Fees Earned or Paid In Cash ($) (1)	Stock Awards ($)(4)	Option Awards ($) (2)	All Other Compensation ($) (3)	Total ($)
N. Anthony Coles, M.D.(5)	$ 11,507	—	$ 820,587	$ 50,000	$ 882,094
Bradley Bolzon, Ph.D.	—	$ 101,236	—	—	—
Ali Behbahani, M.D.	—	—	—	—	—
Simeon J. George, M.D.	—	—	—	—	—
Kurt Von Emster	—	—	—	—	—
Tom Woiwode, Ph.D.	—	$ 101,236	—	—	—
Pablo Cagnoni, M.D.(6)	$ 1,973	—	$ 357,768	$ 7,500	$ 367,241

(1) Amounts reported represent a prorated portion of the annual retainer each of Drs. Coles and Cagnoni earned for their board service in 2015 and, in the case of Dr. Coles, his service as chairman of our board of directors.

(2) Amount represents the aggregate grant date fair value of the option award granted to Drs. Coles and Cagnoni in 2015 computed in accordance with FASB ASC Topic 718. Pursuant to FASB ASC Topic 718, the amount shown excludes the impact of estimated forfeitures related to service-based vesting conditions. For additional information on the valuation assumptions underlying the value of these awards, see the notes to our consolidated financial statements and discussions included elsewhere in this prospectus.

(3) Amounts reported represent fees earned for consulting services provided to us prior to appointment to our board of directors.

(4) Amount represents the aggregate grant date fair value of the equity award granted to Drs. Bolzon and Woiwode in 2015 computed in accordance with FASB ASC Topic 718.

(5) As of December 31, 2015, Dr. Coles held an option to purchase 268,093 shares, which option vests in 48 equal monthly installments following October 9, 2015. This option accelerates in full upon a termination of Dr. Cole's service by us without cause or upon a change in control.

(6) As of December 31, 2015, Dr. Cagnoni held an option to purchase 93,833 shares, which option vests in 48 equal monthly installments following December 8, 2015. This option accelerates in full upon a termination of Dr. Cagnoni's service by us without cause or upon a change in control.

In October 2015, we entered into offer letters with each of Dr. Coles and Dr. Cagnoni to serve as members of our board of directors. Each offer letter provides for an initial option award (268,093 shares in the case of Dr. Coles and 93,833 shares in the case of Dr. Cagnoni), as well as an annual cash retainer equal to $30,000. In addition, Dr. Coles' offer letter provided him with an additional annual cash retainer equal to $20,000 in connection with his service as the chairman of our board of directors.

Non-Employee Director Compensation Policy

Our board of directors has adopted a non-employee director compensation policy, to be effective as of the effectiveness of the registration statement of which this prospectus is a part, that is designed to enable us to attract and retain, on a long-term basis, highly qualified non-employee directors. Under the policy, each director who is not an employee will be paid cash compensation from and after the effectiveness of the registration statement of which this prospectus is a part, as set forth below:

	Annual Retainer
Board of Directors:	
Chairman	$ 65,000
Member	$ 35,000
Audit Committee:	
Chairman	$ 15,000
Member	$ 7,500
Compensation, Nomination and Corporate Governance Committee:	
Chairman	$ 10,000
Member	$ 5,000

Upon the effectiveness of the registration statement of which this prospectus is a part, each non-employee director serving on our board of directors will be granted (i) in the case of a non-employee director who has not previously received equity compensation for his or her service on the board prior to this offering, a non-qualified stock option to purchase 30,000 common shares, which will vest in substantially equal monthly installments during the 36 months following the grant date, subject to continued service as a director through such date and (ii) in the case of a non-employee director who has previously received equity compensation for services on the board of directors prior to this offering, a non-qualified stock option to purchase 15,000 common shares, which will vest in substantially equal monthly installments during the 12 months following the grant date, subject to continued service as a director through such date.

In addition, each non-employee director elected or appointed to our board of directors following the completion of this offering will be granted a non-qualified stock option to purchase 30,000 common shares on the date of such director's election or appointment to the board of directors, which will vest in substantially equal monthly installments during the 36 months following the grant date, subject to continued service as a director through such date.

On the date of each annual meeting of stockholders of our company, each non-employee director serving on the board immediately following the annual meeting will be granted a non-qualified stock option to purchase 15,000 common shares, which will vest in substantially equal monthly installments during the 12 months following his or her election as a director, subject to continued service as a director through such date, with vesting accelerating in full as of the date of the next annual meeting of shareholders at which directors are generally elected.

Scientific Advisory Board Compensation

Each member of our scientific advisory board receives an annual payment of $50,000 for serving as a member of our scientific advisory board, other than Dr. Stephen Elledge, who receives $40,000 annually, and Dr. Emmanuelle Charpentier, who receives €30,000 annually. We also reimburse each member of our scientific advisory board for out-of-pocket expenses incurred in connection with attending board meetings. In addition, upon joining our scientific advisory board in 2015, we granted Dr. Stephen Elledge an option to purchase 13,333 common shares at an exercise price of $1.85 per share. Of these options, 8,333 vest ratably over the first 12 months, and 5,000 options vest ratably over the subsequent 24 months.

Equity Incentive Plans

2015 Stock Option And Grant Plan

The 2015 Stock Option and Grant Plan, or 2015 Stock Option Plan, was approved by our board of directors and our shareholders in April 2015. As of June 30, 2016, 1,077,315 common shares have been reserved for issuance under the 2015 Stock Option Plan in the form of incentive stock options, non-qualified stock options, restricted stock, unrestricted stock, restricted stock units or any combination of the foregoing. The shares issuable pursuant to awards granted under the 2015 Stock Option Plan are authorized but unissued shares.

The 2015 Stock Option Plan is administered by our board, or at the discretion of the board, a committee of the board comprised of not less than two (2) directors, which has full power to select the employees, directors and service providers to whom awards will be granted and to determine the specific terms and conditions of each award, subject to the provisions of the 2015 Stock Option Plan.

The option exercise price or the restricted stock purchase price of each award granted under the 2015 Stock Option Plan is determined by our board, or the designated committee, and may not be less than the fair market value of a share of common shares on the date of grant. The term of each option is fixed by the board and may not exceed 10 years from the date of grant. The board determines at what time or times each option may be exercised when granting the option.

The 2015 Stock Option Plan provides that, upon a sale transaction of the company, unless provision is made in connection with the sale transaction in the sole discretion of the parties thereto for the assumption or continuation of the awards by the successor entity or substitution of the awards with new awards of the successor entity, with appropriate adjustment, all options not exercised will terminate upon the closing of the sale transaction.

Our board may amend the 2015 Stock Option Plan but no such action may adversely affect the rights of an award holder without such holder's consent. Approval by our shareholders of amendments to the 2015 Stock Option Plan must be obtained if required by law.

As of June 30, 2016, options to purchase 2,709,572 common shares were outstanding under the 2015 Stock Option Plan. During the year ended December 31, 2015, we granted options to purchase 1,939,986 common shares under the 2015 Stock Option Plan. During the six months ended June 30, 2016, we granted options to purchase 772,252 common shares under the 2015 Stock Option Plan. Our board has determined not to make any further awards under the 2015 Stock Option Plan following the completion of this offering.

2016 Stock Option Plan

On July 19, 2016, our board of directors adopted and our shareholders approved our 2016 Stock Option and Incentive Plan, or 2016 Stock Option Plan, which will become effective upon completing of this offering and will replace the 2015 Stock Option Plan. Our 2016 Stock Option Plan provides us flexibility to use various equity-based incentive and other awards as compensation tools to motivate our workforce. These tools include stock options, stock appreciation rights, restricted stock, restricted stock units, unrestricted stock, performance share awards and cash-based awards. The 2016 Stock Option Plan will become effective immediately prior to the completion of this offering.

We have initially reserved 7,271,779 common shares for the issuance of awards under the 2016 Stock Option Plan. This number is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

The shares issuable pursuant to awards granted under the 2016 Stock Option Plan will be authorized but unissued shares or shares that we reacquire. The common shares underlying any awards from the 2016 Stock

Option Plan and the 2015 Stock Option Plan that are forfeited, cancelled, held back upon exercise or settlement of an award to satisfy the exercise price or tax withholding, reacquired by us prior to vesting, satisfied without any issuance of common shares, expire or are otherwise terminated (other than by exercise) under the 2016 Stock Option Plan will be added back to the shares available for issuance under the 2016 Stock Option Plan.

Under the 2016 Stock Option Plan, stock options or stock appreciation rights with respect to no more than 2,000,000 shares may be granted to any one individual in any one calendar year and the maximum aggregate number of shares that may be issued in the form of incentive stock options shall not exceed the initial number of shares reserved and available for issuance under the 2016 Stock Option Plan.

The 2016 Stock Option Plan will be administered by the compensation, nomination and corporate governance committee of the board of directors. The compensation, nomination and corporate governance committee, or compensation committee, has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the 2016 Stock Option Plan. Employees, nonemployee directors and other key persons (including consultants) are eligible to receive awards under the 2016 Stock Option Plan.

The 2016 Stock Option Plan permits the granting of both options to purchase common shares intended to qualify as incentive stock options under Section 422 of the U.S. Internal Revenue Code of 1986, as amended, or the Code, and options that do not so qualify. The exercise price of each stock option will be determined by our compensation committee but may not be less than 100% of the fair market value of our common shares on the date of grant or, in the case of an incentive stock option granted to a 10% owner, less than 110% of the fair market value of our common shares on the date of grant. The term of each stock option will be fixed by the compensation committee and may not exceed 10 years from the date of grant (or five years in the case of an incentive stock option granted to a 10% owner). The compensation committee will also determine the vesting schedule for granted stock options.

The compensation committee may award stock appreciation rights subject to such conditions and restrictions as it may determine. Stock appreciation rights entitle the recipient to shares of common shares equal to the value of the appreciation in our stock price over the exercise price. The exercise price of each stock appreciation right may not be less than 100% of the fair market value of the common shares on the date of grant.

The compensation committee may award restricted stock or restricted stock units to participants subject to such conditions and restrictions as it may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment or service with us through a specified vesting period. Our compensation committee may also grant common shares that are free from any restrictions under the 2016 Stock Option Plan. Unrestricted stock may be granted to participants in recognition of past services or for other valid consideration and may be issued in lieu of cash compensation due to such participant.

The compensation committee may grant performance share awards to participants that entitle the recipient to receive share awards of common shares upon the achievement of certain performance goals and such other conditions as our compensation committee shall determine.

The compensation committee may grant performance-based awards to participants in the form of restricted stock, restricted stock units or performance shares upon the achievement of certain performance goals and such other conditions as the compensation committee shall determine. The compensation committee may grant such performance-based awards under the 2016 Stock Option Plan that are intended to qualify as “performance-based compensation” under Section 162(m) of the Code. Those awards would only vest or become payable upon the attainment of performance goals that are established by our compensation committee and related to one or more performance criteria. The performance criteria that could be used with respect to any such awards include: total shareholder return, earnings before interest, taxes, depreciation and amortization, net income (loss) (either before

or after interest, taxes, depreciation and/or amortization), changes in the market price of our common shares, economic value-added, sales or revenue, development, clinical or regulatory milestones, acquisitions or strategic transactions, operating income (loss), cash flow (including, but not limited to, operating cash flow and free cash flow), return on capital, assets, equity, or investment, return on sales, gross or net profit levels, productivity, expense, margins, operating efficiency, customer satisfaction, working capital, earnings (loss) per share, sales or market shares and number of customers, any of which may be measured either in absolute terms or as compared to any incremental increase or as compared to results of a peer group. From and after the time that we become subject to Section 162(m) of the Code, the maximum award that is intended to qualify as "performance-based compensation" under Section 162(m) of the Code that may be made to any one employee during any one calendar year period is 2,000,000 shares with respect to a stock-based award.

The 2016 Stock Option Plan provides that upon the effectiveness of a "sale event," as defined in the 2016 Stock Option Plan, all options and stock appreciation rights that are not exercisable immediately prior to the effective time of the sale event shall become fully exercisable as of the effective time of the sale event, all other awards with time-based vesting, conditions or restrictions, shall become fully vested and nonforfeitable as of the effective time of the sale event and all awards with conditions and restrictions relating to the attainment of performance goals may become vested and nonforfeitable in the discretion of the compensation committee and all awards granted under the 2016 Stock Option Plan shall terminate. In addition, in connection with the termination of the 2016 Stock Option Plan upon a sale event, we may make or provide for a cash payment to participants holding options and stock appreciation rights equal to the difference between the per share cash consideration payable to shareholders in the sale event and the exercise price of the options or stock appreciation rights.

Our board of directors may amend or discontinue the 2016 Stock Option Plan and our compensation committee may amend or cancel outstanding awards for purposes of satisfying changes in law or any other lawful purpose, including option repricing, but no such action may adversely affect rights under an award without the holder's consent. Certain amendments to the 2016 Stock Option Plan may require the approval of our shareholders.

No awards may be granted under the 2016 Stock Option Plan after the date that is 10 years from the date of shareholder approval of the 2016 Stock Option Plan.

2016 Employee Stock Purchase Plan

Our 2016 Employee Stock Purchase Plan was adopted by our board of directors and approved by our shareholders on July 19, 2016 and will become effective upon completion of this offering. Our 2016 Employee Stock Purchase Plan authorizes the initial issuance of up to a total of 413,226 common shares to participating employees. This number is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

All employees who have been employed by us or our designated subsidiaries for at least 30 days and whose customary employment is for more than 20 hours a week are eligible to participate in our 2016 Employee Stock Purchase Plan. Any employee who owns, or would own upon such purchase under our 2016 Employee Stock Purchase Plan, 5% or more of the voting power or value of our stock is not eligible to purchase shares under our 2016 Employee Stock Purchase Plan.

We may make one or more offerings to our employees to purchase stock under our 2016 Employee Stock Purchase Plan. Unless otherwise determined by the administrator of our 2016 Employee Stock Purchase Plan, each offering will begin on the first business day occurring on or after each January 1st and July 1st and will end on the last business day occurring on or before the following June 30th and December 31st, respectively, each referred to as offering periods. The administrator may designate different offering periods in its discretion but no offering shall exceed 12 months in duration or overlap with another offering.

Each employee who is a participant in our 2016 Employee Stock Purchase Plan may purchase shares by authorizing payroll deductions of up to 15% of his or her eligible compensation during an offering period. Unless the participating employee has previously withdrawn from the offering, his or her accumulated payroll deductions will be used to purchase common shares on the last business day of the offering period at a price equal to 85% of the fair market value of the common shares on either the first or the last day of the offering period, whichever is lower, provided that no more than 1,500 shares of common shares or such other lesser maximum number established by the plan administrator may be purchased by any one employee during each offering period. Under applicable tax rules, an employee may purchase no more than $25,000 worth of common shares, valued at the start of the purchase period, under our 2016 Employee Stock Purchase Plan in any calendar year.

The accumulated payroll deductions of any employee who is not a participant on the last day of an offering period will be refunded. An employee's rights under our 2016 Employee Stock Purchase Plan terminate upon voluntary withdrawal from the plan or when the employee ceases employment for any reason.

Our 2016 Employee Stock Purchase Plan may be terminated or amended by our board of directors at any time. Amendments that increase the number of common shares authorized under our 2016 Employee Stock Purchase Plan and certain other amendments require the approval of our shareholders.

Pension Plan

We participate in a retirement plan, or the Pension Plan, organized through enrollment in an independent collective foundation that covers our employees in Switzerland, including Dr. Novak. The assets are invested by the collective foundation in a diversified portfolio that respects the requirements of the Swiss Law on Occupational Retirement, Survivors and Disability Pension Plans, or BVG. Under the Pension Plan, both we and the employee share the costs equally. The structure of the Pension Plan and the legal provisions of the BVG mean that we are exposed to actuarial risks. The main risks are investment risk, interest risk, disability risk and the risk of longevity. Through the affiliation to a collective foundation, we have minimized these risks, since they are shared between a much greater number of participants.

The collective foundation is governed by a foundation board. The board is made up of an equal number of employee and employer representatives of the different affiliated companies. We have no direct influence on the investment strategy of the collective foundation. We cannot determine the benefits or how they are financed directly. The foundation board of the collective foundation is responsible for defining the investment strategy, for making changes to the pension fund regulations and in particular, also for defining the financing of the pension benefits.

The old age benefits are based on retirement savings for each employee, coupled with annual retirement credits and interest (there is no possibility to credit negative interest). At retirement age, the insured members can choose whether to take a pension for life, which includes a spouse's pension, or a lump sum. In addition to retirement benefits, the plan benefits also include disability and death benefits. Insured members may also buy into the scheme to improve their pension provision up to the maximum amount permitted under the rules of the plan and may withdraw funds early for the purchase of a residential property for their own use subject to limitations under Swiss law. On leaving employment with us, retirement savings are transferred to the pension institution of the new employer or to a vested benefits institution. This type of benefit may result in pension payments varying considerably between individual years. In defining the benefits, the minimum requirements of the BVG and its implementing provisions must be observed. The BVG defines the minimum pensionable salary and the minimum retirement credits. In Switzerland, the minimum interest rate applicable to these minimum retirement savings is set by the Swiss Federal Council at least once every two years. In 2015 the rate was 1.75% and for 2016 it is 1.25%.

PRINCIPAL SHAREHOLDERS

The following table presents information relating to the beneficial ownership of our common shares as of September 2, 2016, as if the conversion of our preferred shares into common shares on a one-for-one basis had occurred, by:

- each person, or group of affiliated persons, known by us to own beneficially more than 5% of our outstanding common shares;
- each of our named executive officers and directors; and
- all executive officers and directors as a group.

Upon completion of this offering, all of our outstanding preferred shares, including the shares issued in the Series B Private Placement Extension, will automatically be converted into common shares on a one-for-one basis and we will have only one class of shares issued and outstanding. All holders of our common shares will have the same voting rights upon the completion of this offering.

The number of common shares beneficially owned by each entity, person, executive officer or director is determined in accordance with the rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Under such rules, beneficial ownership includes any common shares over which the individual has sole or shared voting power or investment power as well as any common shares that the individual has the right to acquire within 60 days of September 2, 2016 through the exercise of any option, warrant or other right. The table does not give effect to any shares that may be acquired by our shareholders, directors or executive officers pursuant to the directed share program. Except as otherwise indicated, and subject to applicable community property laws, the persons named in the table have sole voting and investment power with respect to all common shares held by that person.

The percentage of outstanding common shares is computed on the basis of 32,541,473 common shares outstanding as of September 2, 2016, which includes 97,744 unvested restricted shares and conversion of all our outstanding preferred shares on a one-for-one basis into 27,135,884 common shares. The information relating to the number and percentage of shares beneficially owned after the offering assumes the sale by us of 4,700,000 shares of common shares in this offering, the sale of 2,187,500 common shares in the concurrent private placement and the issuance of 328,017 common shares to Dr. Emmanuelle Charpentier immediately prior to the closing of this offering pursuant to a call option agreement, dated March 20, 2015 between us and Dr. Charpentier. Common shares that a person has the right to acquire within 60 days of September 2, 2016 are deemed outstanding for purposes of computing the percentage ownership of the person holding such rights, but are not deemed outstanding for purposes of computing the percentage ownership of any other person, except with respect to the percentage ownership of all named executive officers and directors as a group. Unless otherwise indicated below, the address for each beneficial owner is CRISPR Therapeutics AG, Aeschenvorstadt 36, 4051 Basel, Switzerland.

	Shares Beneficially Owned Before This Offering and the Concurrent Private Placement		Shares Beneficially Owned After This Offering and the Concurrent Private Placement	
Shareholder	Number	Percent	Number	Percent
5% Shareholders				
Abingworth Bioventures VI, L.P.(1)	2,545,814	7.82%	2,545,814	6.40%
Bayer Global Investments B.V.(2)	2,605,330	8.01%	4,792,830	12.06%
Celgene Alpine Investment Company III, LLC(3)	4,034,830	12.40%	4,034,830	10.15%
Entities affiliated with New Enterprise Associates(4)	3,154,228	9.69%	3,154,228	7.93%
Entities affiliated with Versant Ventures(5)	6,748,347	20.74%	6,748,347	16.97%
S.R. One, Limited(6).	3,154,127	9.69%	3,154,127	7.93%
Vertex Pharmaceuticals (Europe) Limited(7)	2,472,301	7.60%	2,472,301	6.22%
Named Executive Officers and Directors				
Rodger Novak, M.D.(8)	1,388,149	4.24%	1,388,149	3.48%
Sven Ante (Bill) Lundberg, M.D.(9)	505,217	1.55%	505,217	1.27%
Samarth Kulkarni, Ph.D.(10)	271,443	*	271,443	*

Shareholder	Shares Beneficially Owned Before This Offering and the Concurrent Private Placement		Shares Beneficially Owned After This Offering and the Concurrent Private Placement	
	Number	Percent	Number	Percent
N. Anthony Coles, M.D.(11)	67,023	*	67,023	*
Bradley Bolzon, Ph.D.(12)	7,090,354	21.79%	7,090,354	17.83%
Ali Behbahani, M.D.	—	*	—	*
Kurt von Emster(13)	2,545,814	7.82%	2,545,814	6.40%
Simeon J. George, M.D.(14)	3,154,127	9.69%	3,154,127	7.93%
Thomas Woiwode, Ph.D.(15)	7,090,354	21.79%	7,090,354	17.83%
Pablo Cagnoni, M.D.(16)	21,503	*	21,503	*
All executive officers and directors as a group (13 persons)	15,590,841	47.33%	15,590,841	38.83%

* Indicates beneficial ownership of less than 1% of the total issued and outstanding common shares.

(1) Consists of (a) 2,354,050 common shares issuable upon conversion of Series A-3 Preferred Shares and (b) 191,764 common shares issuable upon conversion of Series B Preferred Shares beneficially owned Abingworth Bioventures VI, L.P, or ABV VI. Abingworth Bioventures VI GP LP, a Scottish limited partnership, serves as the general partner of ABV VI. Abingworth General Partner VI LLP, an English limited liability partnership, serves as the general partner of Abingworth Bioventures VI GP LP. ABV VI (acting by its general partner Abingworth Bioventures VI GP LP, acting by its general partner Abingworth General Partner VI LLP) has delegated to Abingworth LLP, an English limited liability partnership, all investment and dispositive power over the securities held by ABV VI. An investment committee of Abingworth LLP, comprised of Stephen W. Bunting, Timothy Haines, Kurt von Emster and Genghis Lloyd-Harris, approves investment and voting decisions by a majority vote, and no individual member has the sole control or voting power over the securities held by ABV VI. Mr. von Emster is a Managing Partner of Abingworth LLP and a member of our board of directors. Each of Abingworth Bioventures VI GP LP, Abingworth General Partner VI LLP, Mr. von Emster, Dr. Bunting, Dr. Haines and Dr. Lloyd-Harris disclaims beneficial ownership of these shares, except to the extent of their pecuniary interest in such shares. The principal address for each of the entities and individuals listed above is c/o Abingworth LLP, Princes House, 38 Jermyn Street, London, England SW1Y 6DN.

(2) Consists of 2,605,330 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by Bayer Global Investments B.V., a wholly owned subsidiary of Bayer AG. Bayer AG shares with Bayer Global Investment B.V. voting and investment power of all such shares. The address for Bayer AG is 51368 Leverkusen, Germany.

(3) Consists of 4,034,830 common shares issuable upon conversion of Series B Preferred Shares beneficially owned Celgene Alpine Investment Company III, LLC, a wholly owned subsidiary of Celgene Corporation, or Celgene. Celgene has the power to vote, acquire, hold and dispose of all such shares. Celgene disclaims beneficial ownership of these shares, except to the extent of its pecuniary interest therein. The principal address for Celgene is 86 Morris Avenue, Summit, New Jersey 07901.

(4) Consists of (a) 2,937,854 common shares issuable upon conversion of Series A-3 Preferred Shares and 112,160 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by New Enterprise Associates 15, L.P., or NEA 15, and (b) 4,707 common shares issuable upon conversion of Series A-3 Preferred Shares and 99,507 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by NEA Ventures 2015, L.P., or NEA Ventures. The shares directly held by NEA 15 are indirectly held by NEA Partners 15, L.P., or NEA Partners 15, the sole general partner of NEA 15, NEA 15 GP, LLC, or NEA 15 LLC, the sole general partner of NEA Partners 15 and each of the individual managers of NEA 15 LLC. The individual managers, or collectively, the managers, of NEA 15 LLC are Peter J. Barris, Forest Baskett, Anthony A Florence, Jr., Krishna “Kittu” Kolluri, David M. Mott, Scott D. Sandell, Peter Sonsini, Ravi Viswanathan, Jon Sakoda and Harry R. Weller. The managers share voting and dispositive power with regard to the shares held by NEA 15. Karen P. Welsh, the general partner of NEA Ventures, shares voting and dispositive power with regard to the shares held by NEA Ventures. Dr. Behbahani, a member of our board of directors, has no dispositive power with regard to any shares held

by NEA 15 and NEA Ventures. Each of the managers, Karen P. Welsh and Dr. Behbahani, disclaim beneficial ownership of all applicable shares except to the extent of their actual pecuniary interest in such shares. The principal address for NEA 15 and NEA Ventures is c/o New Enterprise Associates, Inc., 1954 Greenspring Drive, Suite 600, Timonium, Maryland 21093.

(5) Consists of (a) 437,247 common shares issuable upon conversion of Series A-1 Preferred Shares, 3,100,477 common shares issuable upon conversion of Series A-2 Preferred Shares, 231,077 common shares issuable upon conversion of Series B Preferred Shares and 239,648 common shares beneficially owned by Versant Venture Capital IV, L.P., or VVC IV, (b) 2,754 common shares issuable upon conversion of Series A-1 Preferred Shares, 19,524 common shares issuable upon conversion of Series A-2 Preferred Shares and 1,454 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by Versant Side Fund IV, L.P., or VSF IV, (c) 2,210,417 common shares issuable upon conversion of Series A-3 Preferred Shares and 173,167 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by Versant Venture Capital V, L.P., or VVC V, (d) 66,490 common shares issuable upon conversion of Series A-3 Preferred Shares and 5,210 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by Versant Affiliates Fund V, L.P., or VAF V, (e) 168,224 common shares issuable upon conversion of Series A-3 Preferred Shares and 13,180 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by Versant Venture Capital V (Canada) LP, or VVC CAN, and (f) 73,704 common shares issuable upon conversion of Series A-3 Preferred Shares and 5,774 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by Versant Ophthalmic Affiliates Fund I, L.P, or VOA. Versant Ventures IV, LLC, or VV IV, serves as the sole general partner of VVC IV and VSF IV and owns no shares directly. Brian G. Atwood, Samuel D. Colella, Ross A. Jaffe, William J. Link, Rebecca B. Robertson, Bradley Bolzon, Ph.D., Charles M. Warden, Kirk G. Nielsen, Thomas Woiwode and Robin L. Praeger are managing directors of VV IV and share voting and dispositive power over the shares held by VVC IV and VSF IV; however, they each disclaim beneficial ownership of the shares held by VVC IV and VSF IV, except to the extent of their pecuniary interests therein. Versant Ventures V, LLC, or VV V, serves as the sole general partner of VOA, VAF V and VVC V and owns no shares directly. Versant Ventures V (Canada) GP-GP, Inc. or VV V CAN GP, serves as the sole general partner of Versant Ventures V (Canada), L.P., or VV V CAN, which serves as the sole general partner of VVC CAN and owns no shares directly. Samuel D. Colella, William J. Link, Bradley Bolzon, Ph.D., Robin L. Praeger, Kirk G. Nielson and Thomas Woiwode, Ph.D. are managing directors of VV V and directors of VV V CAN GP and share voting and dispositive power over the shares held by VOA, VAF V, VVC V and VVC CAN; however, they each disclaim beneficial ownership of the shares held by VOA, VAF V, VVC V and VVC CAN, except to the extent of their pecuniary interests therein. Drs. Bolzon and Woiwode are members of our board of directors. The address for each of the Versant Ventures entities is One Sansome Street, Suite 3630, San Francisco, CA 94104.

(6) Consists of (a) 2,942,560 common shares issuable upon conversion of Series A-3 Preferred Shares and (b) 211,567 common shares issuable upon conversion of Series B Preferred Shares beneficially owned by S.R. One Limited. S.R. One, Limited is an indirect, wholly-owned subsidiary of GlaxoSmithKline plc. Dr. George is a partner a S.R. One, Limited and a member of our board of directors. Dr. George disclaims beneficial ownership of these shares, except to the extent of his pecuniary interest therein. The principal address for S.R. One, Limited is S.R. One, Limited is 161 Washington Street, Suite 500, Conshohocken, Pennsylvania 19428.

(7) Consists of 2,472,301 common shares issuable upon conversion of Series B Preferred Shares beneficially owned Vertex Pharmaceuticals (Europe) Limited. Vertex Pharmaceutical (Europe) Limited is a wholly owned subsidiary of Vertex Pharmaceuticals, Incorporated. The principal place of business Vertex Pharmaceuticals, Incorporated is 50 Northern Avenue, Boston, Massachusetts 02210.

(8) Consists of (a) 946,912 common shares owned directly, (b) 173,144 common shares issuable upon exercise of stock options granted to Dr. Novak that are exercisable within 60 days of September 2, 2016 and (c) 268,093 restricted common shares.

(9) Consists of (a) 55,217 common shares issuable upon conversion of Series B Preferred Shares and (b) 450,000 restricted common shares.

(10) Consists of (a) 134,047 restricted common shares and (b) 137,396 common shares issuable upon exercise of stock options granted to Dr. Kulkarni that are exercisable within 60 days of September 2, 2016.

(11) Consists of (a) 16,756 common shares issuable upon exercise of stock options granted to Dr. Coles that are exercisable within 60 days of September 2, 2016 and (b) 50,267 common shares issuable upon exercise of stock options granted to Dr. Coles and assigned to the Coles 2016 Irrevocable Trust dated June 30, 2016 that are exercisable within 60 days of September 2, 2016.

(12) Consists of (a) the shares disclosed in footnote (5) above and (b) 342,007 common shares. Dr. Bolzon is a managing director of VV IV, VV V and a director of VV V CAN GP. Dr. Bolzon disclaims beneficial ownership of the shares held by VVC IV, VSF IV, VOA, VAF V, VVC V and VVC CAN, except to the extent of his pecuniary interests therein.

(13) Consists of the shares disclosed in footnote (1) above. Mr. von Emster is a Managing Partner of Abingworth LLP. Mr. von Emster disclaims beneficial ownership of the shares held by Abingworth Bioventures VI, L.P., except to the extent of his pecuniary interest therein.

(14) Consists of the shares disclosed in footnote (6) above. Dr. George is a partner at S.R. One, Limited. Dr. George has no dispositive power with regard to any shares held by S.R. One, Limited and disclaims beneficial ownership of the shares held by S.R. One Limited, except to the extent of his pecuniary interest in such shares.

(15) Consists of (a) the shares disclosed in footnote (5) above and (b) 342,007 common shares. Dr. Woiwode is a managing director of VV IV, VV V and a director of VV V CAN GP. Dr. Woiwode disclaims beneficial ownership of the shares held by VVC IV, VSF IV, VOA, VAF V, VVC V and VVC CAN, except to the extent of his pecuniary interests therein.

(16) Consists of 21,503 common shares issuable upon exercise of stock options granted to Dr. Cagnoni that are exercisable within 60 days of September 2, 2016.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a description of related party transactions we have entered into since our inception in October 2013 with any of our executive officers, directors and holders of more than 5% of any class of our voting securities, or any member of the immediate family of any of the foregoing persons, other than the compensation arrangements we describe under "Management."

Shareholders' Agreement

We have entered into a shareholders' agreement with all of our shareholders, which provides our shareholders with certain board nomination rights, preemptive rights, drag-along rights, tag-along rights and registration rights. Pursuant to the shareholders' agreement, each of S.R. One, Limited, NEA and Abingworth Bioventures VI, L.P. has the right to designate one director to our board of directors and entities affiliated with Versant Ventures have the right to designate two directors to our board of directors. S.R. One, Limited, NEA and Abingworth Bioventures VI, L.P. have designated Dr. George, Dr. Behbahani and Mr. von Emster, respectively. Versant has designated Drs. Bolzon and Woiwode. The shareholders' agreement will terminate in connection with this offering.

Pursuant to our shareholders' agreement, we have agreed to acquire the prior written consent of certain of our U.S. shareholders before undertaking any transaction which would cause us to become a controlled foreign corporation, or CFC, and to use commercially reasonable efforts to avoid qualification as a passive foreign investment company, or PFIC. In addition, we agreed to consult with our U.S. tax advisors to determine whether we would be treated as a CFC or PFIC for each tax year. If we are a CFC for a taxable year, we are generally required to advance pay to certain U.S. shareholders an amount equal to 50% of our undistributed earnings included in the gross income of such shareholder pursuant to Section 951 of the U.S. Internal Revenue Code of 1986, as amended, or the Code. If we are a PFIC for a taxable year, we are generally required to advance pay to certain U.S. shareholders who make a qualified electing fund election, or QEF election, an amount equal to 50% of the amount that such shareholder is required to include in gross income pursuant to Section 1293 of the Code. All such amounts, if paid, would generally be deemed an advance against the payment of any future dividends or distributions. Our shareholders' agreement was amended in June 2016 to provide that our undertaking to make advance payments to U.S. shareholders does not apply for tax liabilities in respect to taxable years during which the Company completes an initial public offering or any year thereafter. We also have obligations to provide timely notice and other information to certain of our U.S. shareholders regarding the determination of, and our status as, a CFC and PFIC.

For the year ended December 31, 2015, we determined that we are both a CFC and a PFIC. Under the shareholders' agreement we were obligated to notify certain U.S. shareholders of this determination within 30 days of December 31, 2015, however, we did not finalize the determination of our status until after that date. If timely notification had been given to those shareholders and if all applicable U.S. shareholders had elected to treat us a QEF, we estimate we may have been required to make advance payments to those shareholders of up to $2.6 million for the tax year ended December 31, 2015. We have not made any such advance payments. In connection with our determination that we are a CFC and PFIC for the year ended December 31, 2015, we formally offered an aggregate settlement of up to $2.0 million to all of the U.S. shareholders who are party to the shareholders' agreement and would have been eligible to make a QEF election for 2015 had we provided timely notice to such shareholders in order to release us from any and all obligations or claims under the shareholder agreement for potential lack of timely notification of our 2015 PFIC status. We have entered into settlement and release agreements with substantially all of these shareholders. Pursuant to the settlement and release agreements we agreed to make a one-time payment in exchange for each such shareholder releasing us from all matters and liability relating to our status as a CFC or PFIC for any taxable year from 2013 through 2015. In October 2016, we made payments to each of these shareholders in an aggregate amount of approximately $1.8 million for such

releases, with an additional $0.2 million of potential payments outstanding. The table below sets forth the aggregate payments made pursuant to the settlement and release agreements to each of our directors, executive officers or holders of more than 5% of our capital stock, or an affiliate or immediate family member thereof:

Name	Amount Paid
Abingworth Bioventures VI, L.P.(1)	$ 399,158
Entities affiliates with NEA Enterprise Associates(2)	93,214
Sam Kulkarini	33,512
Tyler Dylan-Hyde	73,380

(1) Abingworth Bioventures VI, L.P. holds greater than 5% of our voting securities and is affiliated with Kurt von Emster, a member of our board of directors.
(2) Entities affiliated with NEA Enterprise Associates hold greater than 5% of our voting securities and are affiliated with Ali Behbahani, M.D., a member of our board of directors.

Registration Rights Agreement

We have entered into a registration rights agreement with certain of our shareholders, which provides such shareholders with the registration rights discussed under “Common Shares Eligible for Future Sale —Shareholder Registration Rights.” The registration rights agreement will become automatically effective upon the termination of the shareholders’ agreement.

Directed Share Program

At our request, the underwriters have reserved up to 5% of the common shares for sale at the initial public offering price to persons who are directors, officers or employees, or who are otherwise associated with us through a directed share program. The number of common shares available for sale to the general public will be reduced by the number of directed shares purchased by participants in the program. Any directed shares not purchased will be offered by the underwriters to the general public on the same basis as all other shares offered. Individuals who purchase shares in the directed share program will be subject to the 180-day lock-up restrictions described in the “Underwriting” section of this prospectus. We have agreed to indemnify the underwriters against certain liabilities and expenses, including liabilities under the Securities Act, in connection with the sales of the directed shares.

Equity Financings

Series A-1 Financing

In October 2013, we issued and sold an aggregate of 440,001 Series A-1 Preferred Shares at a purchase price of CHF 1.14 per share to entities affiliated with Versant Ventures for gross proceeds of CHF 0.5 million. Entities affiliated with Versant Ventures hold greater than 5% of our voting securities and are affiliated with Bradley Bolzon, Ph.D. and Thomas Woiwode, Ph.D., both members of our board of directors.

Common Share Issuance

Simultaneously with the issuance of the Series A-1 Preferred Shares, we issued 335,000 common shares to entities affiliated with Versant at a nominal value per share, for aggregate proceeds of CHF 10,050.

Series A-2 Financing

In April 2014, we issued an aggregate of 3,120,001 Series A-2 Preferred Shares at a purchase price of CHF 3.05 per share to entities affiliated with Versant Ventures, whereby CHF 1.45 per share was received upon

issuance, resulting in gross proceeds of CHF 4.5 million. The balance of CHF 1.60 per share was called in February 2015 by our board of directors, resulting in additional gross proceeds of CHF 5.0 million. Entities affiliated with Versant Ventures hold greater than 5% of our voting securities and are affiliated with Bradley Bolzon, Ph.D. and Thomas Woiwode, Ph.D., both members of our board of directors.

Series A-3 Financing

In April 2015, we issued an aggregate of 10,758,006 Series A-3 Preferred Shares at a purchase price of $4.24 per share, whereby $2.12 per share was received upon issuance, resulting in gross proceeds of approximately $22.8 million. The balance of $2.12 per share was called in May 2016 by our board of directors upon the satisfaction of the conditions set forth in the purchase agreement. This resulted in additional gross proceeds of approximately $22.8 million. The table below sets forth the aggregate number and purchase price of Series A-3 Preferred Shares issued to our directors, executive officers or holders of more than 5% of our capital stock, or an affiliate or immediate family member thereof:

Name	Shares	Aggregate Purchase Price
Entities affiliated with Versant Ventures(1)	2,518,835	$ 10,700,004
S.R. One, Limited(2)	2,942,560	12,499,995
Entities affiliates with NEA Enterprise Associates(3)	2,942,561	12,499,995
Abingworth Bioventures VI, L.P.(4)	2,354,050	10,000,004
Total:	10,758,006	$ 45,699,998

(1) Entities affiliated with Versant Ventures hold greater than 5% of our voting securities and are affiliated with Bradley Bolzon, Ph.D. and Thomas Woiwode, Ph.D., both members of our board of directors.
(2) S.R. One, Limited holds greater than 5% of our voting securities and is affiliated with Simeon J. George, M.D., a member of our board of directors.
(3) Entities affiliated with NEA Enterprise Associates hold greater than 5% of our voting securities and are affiliated with Ali Behbahani, M.D., a member of our board of directors.
(4) Abingworth Bioventures VI, L.P. holds greater than 5% of our voting securities and is affiliated with Kurt von Emster, a member of our board of directors.

Series B Financing

In May 2015, we issued an aggregate of 4,519,016 Series B Preferred Shares at a purchase price of CHF 6.20 per share for gross proceeds of approximately CHF 28.0 million.

The table below sets forth the aggregate number of Series B Preferred Shares issued to our directors, executive officers or holders of more than 5% of our capital stock, or an affiliate or immediate family member thereof, in the May 2015 closing:

Name	Shares	Aggregate Purchase Price
Entities affiliated with Versant Ventures(1)	205,568	CHF 1,273,702
S.R. One, Limited(2)	99,507	616,548
NEA Ventures 2015, Limited Partnership(3)	99,507	616,548
Abingworth Bioventures VI, L.P.(4)	79,604	493,226
Celgene Alpine Investment Company III, LLC	4,034,830	25,000,009
Total:	4,519,016	CHF 28,000,033

(1) Entities affiliated with Versant Ventures hold greater than 5% of our voting securities and are affiliated with Bradley Bolzon, Ph.D. and Thomas Woiwode, Ph.D., both members of our board of directors.

(2) S.R. One, Limited holds greater than 5% of our voting securities and is affiliated with Simeon J. George, M.D., a member of our board of directors.
(3) NEA Ventures 2015, Limited Partnership is affiliated with Ali Behbahani, M.D., a member of our board of directors.
(4) Abingworth Bioventures VI, L.P. holds greater than 5% of our voting securities and is affiliated with Kurt von Emster, a member of our board of directors.

Series B Conversion

In October 2015, we entered into a Convertible Loan Agreement with Vertex Pharmaceuticals (Europe) Limited pursuant to which it made an investment of $30.0 million. Additionally, in December 2015, we entered into a Convertible Loan Agreement with Bayer Global Investments B.V., or Bayer BV, pursuant to which Bayer BV made an investment of $35.0 million. In connection with each loan agreement, pursuant to Swiss Law, all of our then current shareholders were allowed to participate as additional lenders in each loan agreement on a pro-rata basis to their respective shareholdings.

The outstanding principal balance together with accrued interest thereon under each loan agreement was converted into Series B Preferred Shares in January 2016 at a conversion price of $13.43 per share. The table below sets forth the aggregate number of Series B Preferred Shares issued upon conversion to our directors, executive officers or holders of more than 5% of our capital stock, or an affiliate or immediate family member thereof, in the January 2016 conversion:

Name	Aggregate Principal Amount of Loans	Series B Shares Received Upon Conversion
Entities affiliated with Versant Ventures(1)	$ 3,000,000	224,294
S.R. One, Limited(2)	1,500,000	112,060
New Enterprise Associates 15, L.P.(3)	1,500,000	112,160
Abingworth Bioventures VI L.P.(4)	1,500,000	112,160
Vertex Pharmaceuticals (Europe) Limited	30,000,000	2,243,387
Bayer Global Investments B.V.	35,000,000	2,605,330
Sven Ante (Bill) Lundberg, M.D.	738,450	55,217
Total:	$ 73,238,450	5,464,608

(1) Entities affiliated with Versant Ventures hold greater than 5% of our voting securities and are affiliated with Bradley Bolzon, Ph.D. and Thomas Woiwode, Ph.D., both members of our board of directors.
(2) S.R. One, Limited is affiliated with Simeon J. George, M.D., a member of our board of directors.
(3) New Enterprise Associates 15, L.P. is affiliated with Ali Behbahani, M.D., a member of our board of directors.
(4) Abingworth Bioventures VI, L.P. is affiliated with Kurt von Emster, a member of our board of directors.

Share Exchange

In March 2015, we acquired 4,600 ordinary shares of our subsidiary, TRACR Hematology Limited, or TRACR, representing 82.1% of the ordinary share capital, pursuant to a share exchange transaction with the shareholders of TRACR, which we refer to as the share exchange. In exchange for the 4,600 ordinary shares of TRACR and the assignment of certain rights to subscribe for ordinary shares of TRACR, we issued an aggregate of 1,508,878 of our common shares and restricted common shares to the founders, employees and non-employee advisors of TRACR, including (i) 524,830 unrestricted common shares to Rodger Novak, our Chief Executive Officer and one of the co-founders of TRACR, and (ii) 328,016 unrestricted common shares to Shaun Foy, our then Chief Financial Officer and one of the co-founders of TRACR.

Bayer Joint Venture

In December 2015, we entered into a Joint Venture Agreement, or the JV Agreement, with Bayer HealthCare LLC, or Bayer Healthcare, to create Casebia Therapeutics LLP, or Casebia, to discover, develop and commercialize new therapeutics. At the closing of the JV Agreement in March 2016, we contributed $0.1 million to Casebia and Bayer Healthcare contributed an initial amount of $45 million. Bayer Healthcare is committed to contribute up to $300 million in the aggregate, including the $45 million initial contribution. Additionally, as part of our contribution to Casebia, in March 2016, we entered into a IP Contribution Agreement, or the CRISPR IP Contribution Agreement, with Casebia. Pursuant to the CRISPR IP Contribution Agreement, we granted Casebia an exclusive, worldwide, fully paid-up, royalty-free license, including the right to sublicense, to the use of our CRISPR/Cas9 technology. In return, Casebia is required to pay us an aggregate amount of $35 million. For a more detailed description of our joint venture with Bayer Healthcare, see "Business – Bayer Joint Venture."

Bayer Subscription Agreement

In connection with the JV Agreement, in December 2015, we entered in a subscription agreement, or the Subscription Agreement, with Bayer Global Investments B.V., or Bayer BV. Pursuant to the Subscription Agreement, Bayer BV was given the option, at its election, to purchase $35 million of our common shares in a private placement concurrent with this offering at a per share price equal to the public offering price of this offering. In April 2016, Bayer BV provided us written notice of its exercise of the option. We may reduce the amount of Bayer BV's purchase in our sole discretion, subject to the terms of the Subscription Agreement.

Vertex Collaboration Agreement

In October 2015, we entered into a Strategic Collaboration, Option and License Agreement, or the Collaboration Agreement, with Vertex Pharmaceuticals, Incorporated and Vertex Pharmaceuticals (Europe) Limited, together referred to as Vertex. Pursuant to the Collaboration Agreement, we will provide technology and options to obtain licenses relating to our CRISPR/Cas9 technology. In exchange, we received a $105 million up front payment from Vertex, which was comprised of $75 million in cash and a $30 million equity investment in the form of the Vertex Convertible Loan. The Vertex Convertible Loan converted into Series B Preferred Shares in January 2016 as described under "*Series B Conversion*" above. Additionally, for a maximum of six collaboration targets in-licensed for development by Vertex under the Collaboration Agreement, Vertex will pay future development, regulatory and sales milestones of up to $420 million as well as royalty payments in the single digits to low teens on future sales of a commercialized product candidate. The milestone and royalty payments are each subject to reduction under certain specified conditions set forth in the Collaboration Agreement. For a more detailed description of our collaboration with Vertex, see "Business — Vertex Collaboration Agreement."

Lease with Versant Ventures

In October 2013, we moved into our principal executive offices in Switzerland. The office space is leased by Versant Ventures, an entity which holds greater than 5% of our voting securities and is affiliated with Bradley Bolzon, Ph.D. and Thomas Woiwode, Ph.D., who are members of our board of directors. We currently do not pay any sublease fees for the use of the office space and we do not have a written agreement with Versant Ventures to specify the terms of our occupation. We are in the process of finalizing a formal sublease with Versant Ventures.

Real Estate License Agreement with Mass Innovation Labs, LLC

In April 2015, we entered into a real estate license agreement with Mass Innovation Labs, LLC, or Mass Innovation, for office and laboratory space in Cambridge, Massachusetts. Mass Innovation leases the facility from Vertex, which holds 2,472,301, or approximately 7.5%, of our common shares. The fee owed each month is

composed of a base license fee plus an additional membership fee based on the number of occupants at the facility during the applicable calendar month. During 2015, we paid approximately $1.0 million to Mass Innovation under the agreement.

Series B Private Placement Extension

In June 2016, we completed an additional private placement of Series B Preferred Shares, or the Series B Private Placement Extension. An aggregate of 2,834,252 Series B Preferred Shares were issued to certain new and existing investors at a purchase price of $13.43 per share for gross proceeds of approximately $38.1 million. Vertex Pharmaceuticals (Europe) Limited purchased 228,914 Series B Preferred Shares for $3,075,266 in the Series B Private Placement Extension.

Executive Officer and Director Compensation

See the section titled “Executive Compensation” for information regarding compensation of our executive officers and directors.

Employment Agreements

We have entered into offer letters or employment agreements with our executive officers. For more information regarding our agreements with our named executive officers for the fiscal year ended December 31, 2015, see the section titled “Executive Compensation—Narrative to Summary Compensation Table—Employment Arrangements with our Named Executive Officers.”

Indemnification Agreements

We have entered into or plan to enter into indemnification agreements with each of our directors and officers, the form of which is attached as an exhibit to the registration statement of which this prospectus is a part.

Related-Party Transaction Policy

We intend to adopt a formal written policy that our executive officers, directors, holders of more than 5% of any class of our voting securities, and any member of the immediate family of and any entity affiliated with any of the foregoing persons, are not permitted to enter into a related-party transaction with us without the prior consent of our audit committee, or other independent members of our board of directors in the event it is inappropriate for our audit committee to review such transaction due to a conflict of interest. Any request for us to enter into a transaction with an executive officer, director, holders of more than 5% of any class of our voting securities, or any of their immediate family members or affiliates, in which the amount involved exceeds $120,000 must first be presented to our audit committee for review, consideration and approval. In approving or rejecting any such proposal, our audit committee will consider the relevant facts and circumstances available and deemed relevant to our audit committee, including, but not limited to, whether the transaction will be on terms no less favorable than terms generally available to an unaffiliated third-party under the same or similar circumstances and the extent of the related-party’s interest in the transaction. All of the transactions described in this section were entered into prior to the adoption of this policy.

DESCRIPTION OF SHARE CAPITAL AND ARTICLES OF ASSOCIATION

The Company

We are a Swiss stock corporation *(Aktiengesellschaft)* organized under the laws of Switzerland. We were incorporated on October 31, 2013. Our domicile and registered office is in Basel, Switzerland. Our head office is currently located at Aeschenvorstadt 36, 4051 Basel, Switzerland.

Share Capital

As of the date of this prospectus, our share capital is divided into common shares and four categories of preferred shares. Conditional upon the closing of this offering, all of our preferred shares will be converted into common shares on a one-for-one basis, effective upon the registration of the revised articles of association with the commercial register of the Canton of Basel-Stadt, Switzerland. See "—Articles of Association." Upon the closing of this offering, giving effect to (i) the issuance of the common shares to be sold in this offering, (ii) the conversion of all 27,135,884 of our outstanding preferred shares into common shares on a one-for-one basis, and (iii) the issuance of 328,017 common shares to Dr. Emmanuelle Charpentier immediately prior to the closing of this offering pursuant to a call option agreement, dated March 20, 2015, between us and Dr. Charpentier, our issued fully paid-in share capital will consist of CHF 1,192,444.02 divided into 39,748,134 common shares with a nominal value of CHF 0.03 each and no preferred shares.

As of September 30, 2016, 32,869,490 of our common shares were outstanding and held by 46 shareholders of record. This amount includes 97,744 unvested restricted shares and assumes (i) the conversion of all 27,135,884 of our outstanding preferred shares into common shares on a one-for-one basis immediately prior to the closing of this offering and (ii) the issuance of 328,017 common shares to Dr. Emmanuelle Charpentier immediately prior to the closing of this offering pursuant to the Call Option Agreement.

Articles of Association

Prior to the closing of this offering, we intend to adopt amended and restated articles of association which will become effective upon the closing of this offering and the registration of the revised articles of association with the commercial register of the Canton of Basel-Stadt, Switzerland. When we refer to our articles of association in this prospectus, we refer to our amended and restated articles of association as they will be in force upon the closing of this offering.

Ordinary Capital Increase, Authorized And Conditional Share Capital

Under Swiss law, we may increase our share capital (*Aktienkapital*) with a resolution of the general meeting of shareholders (ordinary capital increase) that must be carried out by the board of directors within three months of the general meeting in order to become effective. Under our articles of association, in the case of subscription and increase against payment of contributions in cash, a resolution passed by a simple majority of the shares represented at the general meeting of shareholders regardless of abstentions or empty or invalid votes is required. In the case of subscription and increase against contributions in kind or to fund acquisitions in kind, when shareholders' statutory pre-emptive rights are withdrawn or where transformation of reserves into share capital is involved, a resolution passed by two-thirds of the shares represented at a general meeting of shareholders and the absolute majority of the nominal amount of the shares represented is required.

Furthermore, under the Swiss Code of Obligations, or the CO, our shareholders, by a resolution passed by two-thirds of the shares represented at a general meeting of shareholders and the absolute majority of the nominal amount of the shares represented, may empower our board of directors to issue shares of a specific aggregate nominal amount up to a maximum of 50% of the share capital in the form of:

- conditional capital (*bedingtes Kapital*) for the purpose of issuing shares in connection with, among other things, (i) option and conversion rights granted in connection with convertible bonds of the Company or

one of our subsidiaries or (ii) grants of rights to employees, members of our board of directors or consultants of the Company or of one of our subsidiaries or other persons providing services to the Company or a subsidiary to subscribe for new shares (conversion or option rights); or

- authorized capital (*genehmigtes Kapital*) to be utilized by the board of directors within a period determined by the shareholders but not exceeding two years from the date of the shareholder approval.

Pre-Emptive Rights

Pursuant to the CO, shareholders have pre-emptive rights *(Bezugsrechte)* to subscribe for new issuances of shares. With respect to conditional capital in connection with the issuance of conversion rights, convertible bonds or similar debt instruments, shareholders have advance subscription rights *(Vorwegzeichnungsrechte)* for the subscription of conversion rights, convertible bonds or similar debt instruments.

A resolution passed at a general meeting of shareholders by two-thirds of the shares represented and the absolute majority of the nominal value of the shares represented may authorize our board of directors to withdraw or limit pre-emptive rights or advance subscription rights in certain circumstances.

If pre-emptive rights are granted, but not exercised, the board of directors may allocate the pre-emptive rights as it elects.

With respect to our authorized share capital, the board of directors is authorized by our articles of association to withdraw or to limit the pre-emptive rights of shareholders, and to allocate them to third parties or to us, in the event that the newly issued shares are used for the following purposes:

- if the issue price of the new registered shares is determined by reference to the market price;
- for the acquisition of an enterprise, part(s) of an enterprise or participations, or for the financing or refinancing of any of such transactions, or in the event of share placement for the financing or refinancing of such transactions;
- for purposes of broadening the shareholder constituency of the Company in certain financial or investor markets, for purposes of the participation of strategic partners, or in connection with the listing or registration of new registered shares on domestic or foreign stock exchanges;
- for purposes of granting an over-allotment option of up to 20% of the total number of registered shares in a placement or sale of registered shares to the respective initial purchaser(s) or underwriter(s);
- for raising of capital (including private placements) in a fast and flexible manner which probably could not be reached without the exclusion of the statutory pre-emptive right of the existing shareholders;
- following a shareholder or a group of shareholders acting in concert having accumulated shareholdings in excess of 15% of the share capital registered in the commercial register without having submitted to the other shareholders a takeover offer recommended by the board of directors, or for the defense of an actual, threatened or potential takeover bid, in relation to which the board of directors, upon consultation with an independent financial adviser retained by it, has not recommended to the shareholders acceptance on the basis that the board of directors has not found the takeover bid to be financially fair to the shareholders; or
- for other valid grounds in the sense of Article 652b para. 2 of the CO.

Our Authorized Share Capital

Under our articles of association, our board of directors is authorized at any time until June 30, 2018 to increase our share capital by a maximum aggregate amount of CHF 491,970.15 through the issuance of not more than 16,399,005 shares, which would have to be fully paid-in, with a nominal value of 0.03 CHF each.

Increases in partial amounts are permitted. The board of directors has the power to determine the type of contributions, the issue price and the date on which the dividend entitlement starts.

Our board of directors is also authorized to withdraw or limit pre-emptive rights as described above. This authorization is exclusively linked to the particular available authorized share capital set out in the respective article. If the period to increase the share capital lapses without having been used by the board of directors, the authorization to withdraw or to limit the pre-emptive rights lapses simultaneously with such capital.

Our common shares to be sold in this offering will be issued out of our authorized share capital. Accordingly, upon the consummation of this offering, our authorized but unissued share capital will decrease by the amount of CHF (or by a larger amount, to the extent that any over-allotment shares will be issued).

Our Conditional Share Capital

Conditional Share Capital for Bonds and Similar Debt Instruments

Our share capital may be increased by a maximum aggregate amount of CHF 147,591.00 through the issuance of not more than 4,919,700 common shares, which would have to be fully paid-in, with a nominal value of CHF 0.03 each, by the exercise of conversion and/or option or warrant rights granted in connection with bonds or similar instruments of the Company or one of our subsidiaries, including convertible debt instruments. Shareholders will not have pre-emptive rights in such circumstances. The holders of convertible bonds are entitled to the new shares upon the occurrence of the applicable conversion feature.

When issuing convertible bonds, the board of directors is authorized to withdraw or to limit the advance right of shareholders to subscribe to the convertible bond issuance:

- for the purpose of financing or refinancing the acquisition of enterprises, divisions thereof, or of participations or of newly planned investments of the Company; or
- if the issuance occurs in domestic or international capital markets including private placements.

To the extent that the advance subscription rights are withdrawn, (i) the instruments are to be issued at market conditions; (ii) the term to exercise the option or conversion rights may not exceed 10 years as of the date of the issuance for warrants and twenty years for conversion rights; and (iii) the exercise price for the new shares must at least correspond to the market conditions at the time of the issuance of the instruments.

Conditional Share Capital for Employee Benefit Plans

Our share capital may, to the exclusion of the pre-emptive rights of shareholders, be increased by a maximum aggregate amount of CHF 312,177.21 through the issuance of not more than 10,405,907 common shares, which would have to be fully paid-in, with a nominal value of CHF 0.03 each, by the exercise of option or conversion rights that have been granted to employees, members of the board of directors or consultants of the Company or of one of our subsidiaries or other persons providing services to the Company or a subsidiary through one or more employee benefit plans created by the board of directors.

Uncertificated Securities

Our shares are uncertificated securities *(Wertrechte*, within the meaning of art. 973c of the CO) and, when administered by a financial intermediary *(Verwahrungsstelle*, within the meaning of the Federal Act on Intermediated Securities, "FISA"), qualify as intermediated securities *(Bucheffekten*, within the meaning of the FISA). In accordance with art. 973c of the CO, we will maintain a non-public register of uncertificated securities *(Wertrechtebuch)*. We may at any time convert uncertificated securities into share certificates (including global

certificates), one kind of certificate into another, or share certificates (including global certificates) into uncertificated securities. Following entry in the share register, a shareholder may at any time request from us a written confirmation in respect of the shares. Shareholders are not entitled, however, to request the printing and delivery of certificates. We may print and deliver certificates for shares at any time.

General Meeting Of Shareholders

Ordinary/Extraordinary Meetings, Powers

The general meeting of shareholders is our supreme corporate body. Under Swiss law, ordinary and extraordinary general meetings of shareholders may be held. Under Swiss law, an ordinary general meeting of shareholders must be held annually within six months after the end of a corporation's financial year. In our case, this means within six months after December 31 or before June 30.

The following powers are vested exclusively in the general meeting of shareholders:

- adopting and amending the articles of association, including change of a company's purpose or domicile;
- electing the members of the board of directors, the chairman of the board of directors, the members of the compensation, nomination and corporate governance committee, the auditors and the independent proxy;
- approving the annual report, the annual statutory financial statements and (to the extent required) the consolidated financial statements, and deciding on the allocation of profits as shown on the balance sheet, in particular with regard to dividends;
- approving the compensation (basis, bonus and equity) of members of the board of directors and executive management, which under Swiss law is not necessarily limited to the executive officers;
- discharging the members of the board of directors and executive management from liability with respect to their tenure in the previous financial year;
- dissolving a company with or without liquidation by corporate resolution; and
- deciding matters reserved to the general meeting of shareholders by law or the articles of association or presented to it by the board of directors.

An extraordinary general meeting of shareholders may be called by a resolution of the board of directors or, under certain circumstances, by a company's auditor, liquidator or the representatives of convertible bond holders, if any. In addition, the board of directors is required to convene an extraordinary general meeting of shareholders if shareholders representing at least 10% of the share capital request such general meeting of shareholders in writing. Such request must set forth the items to be discussed and the proposals to be acted upon. The board of directors must convene an extraordinary general meeting of shareholders and propose financial restructuring measures if, based on a company's stand-alone annual statutory balance sheet, half of the share capital and reserves are not covered by its assets.

Voting And Quorum Requirements

Shareholder resolutions and elections (including elections of members of the board of directors) require the affirmative vote of the simple majority of shares represented at the general meeting of shareholders regardless of abstentions or empty or invalid votes, unless otherwise stipulated by law.

A resolution of the general meeting of the shareholders passed by two-thirds of the shares represented at the meeting, and the absolute majority of the nominal value of the shares represented is required for:

- amending a company's corporate purpose;
- the introduction of shares with preferential voting rights;

- cancelling or amending the transfer restrictions of shares;
- creating authorized or conditional share capital;
- increasing the share capital out of equity, against contributions in-kind or for the purpose of acquiring specific assets and granting specific benefits;
- limiting or suppressing shareholder's pre-emptive rights;
- changing a company's domicile;
- alleviating or withdrawing of restrictions upon the transfer of registered shares and the removal of the voting cap of 15%;
- removing the indemnification provision for the board of directors and executive management;
- converting registered shares into bearer shares and vice versa; and
- dissolving or liquidating a company.

The same voting requirements apply to resolutions regarding transactions among corporations based on Switzerland's Federal Act on Mergers, Demergers, Transformations and the Transfer of Assets, or the Merger Act (including a merger, demerger or conversion of a corporation) see "—Compulsory Acquisitions; Appraisal Rights."

In accordance with Swiss law and generally accepted business practices, our articles of association do not provide quorum requirements generally applicable to general meetings of shareholders. To this extent, our practice varies from the requirement of NASDAQ Listing Rule 5620(c), which requires an issuer to provide in its bylaws for a generally applicable quorum, and that such quorum may not be less than one-third of the outstanding voting stock.

Notice

General meetings of shareholders must be convened by the board of directors at least 20 days before the date of the meeting. The general meeting of shareholders is convened by way of a notice appearing in our official publication medium, currently the Swiss Official Gazette of Commerce. Registered shareholders may also be informed by ordinary mail or e-mail. The notice of a general meeting of shareholders must state the items on the agenda, the proposals to be acted upon and, in case of elections, the names of the nominated candidates. Except in the limited circumstances listed below, a resolution may not be passed at a general meeting without proper notice. This limitation does not apply to proposals to convene an extraordinary general meeting of shareholders or to initiate a special investigation and to appoint a special auditor at the request of a shareholder. No previous notification is required for proposals concerning items included duly in the agenda or for debates that do not result in a vote.

All of the owners or representatives of our shares may, if no objection is raised, hold a general meeting of shareholders without complying with the formal requirements for convening general meetings of shareholders (a universal meeting). This universal meeting of shareholders may discuss and pass binding resolutions on all matters within the purview of the ordinary general meeting of shareholders, provided that the owners or representatives of all the shares are present at the meeting.

Agenda Requests

Pursuant to Swiss law, one or more shareholders, whose combined shareholdings represent the lower of (i) one tenth of the share capital or (ii) an aggregate nominal value of at least CHF 1,000,000, may request that an

item be included in the agenda for a general meeting of shareholders. To be timely, the shareholder's request must be received by us generally at least 120 calendar days in advance of the meeting. The request must be made in writing and contain, for each of the agenda items, generally the following information:

- a brief description of the business desired to be brought before the ordinary general meeting of shareholders and the reasons for conducting such business at the ordinary general meeting of shareholders;
- the name and address, as they appear in the share register, of the shareholder proposing such business; and
- all other information required under the applicable laws and stock exchange rules.

In addition, if the shareholder intends to solicit proxies from the shareholders of a company, such shareholder shall notify the company of this intent in accordance with Securities and Exchange Commission Rule 14a-4 and/or Rule 14a-8.

Our business report, the compensation report and the auditor's report must be made available for inspection by the shareholders at our registered office no later than 20 days prior to the general meeting of shareholders. Shareholders of record may be notified of this in writing.

Voting Rights

The shareholders exercise their voting rights at the general meetings of shareholders in proportion to the nominal value of the shares belonging to them. The shares are not divisible. The right to vote and the other rights of share ownership may only be exercised by shareholders (including any nominees) or usufructuaries who are entered in our share register at the cut-off date determined by the board of directors. Those entitled to vote in the general meeting of shareholders may be represented by the independent proxy holder (annually elected by the general meeting of shareholders), another registered shareholder or third person with written authorization to act as proxy or the shareholder's legal representative. The chairman has the power to decide whether to recognize a power of attorney.

Our articles contain provisions that prevent investors from acquiring voting rights exceeding 15% of the outstanding share capital. Specifically, no individual or legal entity may, directly or indirectly, control voting rights with respect to 15% or more of the registered share capital recorded in the Commercial Register. In the event that a shareholder should exceed the 15% ownership threshold, the registered shares exceeding the limit of 15% shall be entered in our share registered as shares without voting rights. The board of directors may in special cases approve exceptions to the above regulations.

Furthermore, the board of directors is authorized to withdraw or limit the preemptive rights of the shareholders and to allot them to third parties following a shareholder or a group of shareholders acting in concert having accumulated shareholdings in excess of 15% of the share capital registered in the commercial register without having submitted to the other shareholders a takeover offer recommended by the board of directors, or for the defense of an actual, threatened or potential takeover bid, in relation to which the board of directors, upon consultation with an independent financial adviser retained by it, has not recommended to the shareholders acceptance on the basis that the board of directors has not found the takeover bid to be financially fair to the shareholders.

Our articles contain provisions that persons who do not expressly declare in the registration application that they are holding the shares on their own account (thereafter: nominees) shall forthwith be entered on the share register as shareholders with voting rights up to a maximum of 3% of the share capital. Beyond that limit, registered shares of nominees shall only be entered as voting if the nominees in question confirm in writing that they are willing to disclose the names, addresses and shareholdings of the persons on whose account they hold 0.5% or more of the share capital. The board of directors concludes agreements with nominees that among other things govern the representation of shareholders and the voting rights.

Dividends And Other Distributions

Our board of directors may propose to shareholders that a dividend or other distribution be paid but cannot itself authorize the distribution. Dividend payments require a resolution passed by a simple majority of the shares represented at a general meeting of shareholders regardless of abstentions or empty or invalid votes. In addition, our auditors must confirm that the dividend proposal of our board of directors conforms to Swiss statutory law and our articles of association.

Under Swiss law, we may pay dividends only if we have sufficient distributable profits brought forward from the previous business years *(Gewinnvortrag)*, or if we have distributable reserves *(freie Reserven)*, each as evidenced by our audited stand-alone statutory balance sheet prepared pursuant to Swiss law, and after allocations to reserves required by Swiss law and the articles of association have been deducted. We are not permitted to pay interim dividends out of profit of the current business year.

Distributable reserves are generally booked either as "free reserves" *(freie Reserven)* or as "reserve from capital contributions"*(Kapitaleinlagereserven).* Under the CO, if our general reserves *(allgemeine Reserven)* amount to less than 20% of our share capital recorded in the commercial register (i.e., 20% of the aggregate nominal value of our issued capital), then at least 5% of our annual profit must be retained as general reserves. The CO permits us to accrue additional general reserves. Further, a purchase of our own shares (whether by us or a subsidiary) reduces the distributable reserves in an amount corresponding to the purchase price of such own shares. Finally, the CO under certain circumstances requires the creation of revaluation reserves which are not distributable.

Distributions out of issued share capital (i.e. the aggregate nominal value of our issued shares) are not allowed and may be made only by way of a share capital reduction. Such a capital reduction requires a resolution passed by a simple majority of the shares represented at a general meeting of shareholders regardless of abstentions or empty or invalid votes. The resolution of the shareholders must be recorded in a public deed and a special audit report must confirm that claims of our creditors remain fully covered despite the reduction in the share capital recorded in the commercial register. The licensed special audit expert must be present at the general meeting of shareholders which adopts such resolution. The share capital may be reduced below CHF 100,000 only if and to the extent that at the same time the statutory minimum share capital of CHF 100,000 is reestablished by sufficient new fully paid-up capital. Upon approval by the general meeting of shareholders of the capital reduction, the board of directors must give public notice of the capital reduction resolution in the Swiss Official Gazette of Commerce three times and notify creditors that they may request, within two months of the third publication, satisfaction of or security for their claims. The reduction of the share capital may be implemented only after expiration of this time limit.

Our board of directors determines the date on which the dividend entitlement starts. Dividends are usually due and payable shortly after the shareholders have passed the resolution approving the payment, but shareholders may also resolve at the ordinary general meeting of shareholders to pay dividends in quarterly or other installments.

For a discussion of the taxation of dividends, see "Taxation—Swiss Tax Considerations—Taxation of Common Shares—Swiss Federal Withholding Tax on Dividends and Distributions."

Transfer Of Shares

Shares in uncertificated form *(Wertrechte)* may only be transferred by way of assignment. Shares that constitute intermediated securities *(Bucheffekten)* may only be transferred when a credit of the relevant intermediated securities to the acquirer's securities account is made in accordance with the relevant provisions of the FISA.

Inspection Of Books And Records

Under the CO, a shareholder has a right to inspect our share register with respect to his own shares and otherwise to the extent necessary to exercise his shareholder rights. No other person has a right to inspect our share register. Our books and correspondence may be inspected with the express authorization of the general meeting of shareholders or by resolution of the board of directors and subject to the safeguarding of our business secrets. See "Comparison of Swiss Law and Delaware Law—Inspection of Books and Records."

Special Investigation

If the shareholders' inspection rights as outlined above prove to be insufficient in the judgment of the shareholder, any shareholder may propose to the general meeting of shareholders that specific facts be examined by a special commissioner in a special investigation. If the general meeting of shareholders approves the proposal, we or any shareholder may, within 30 calendar days after the general meeting of shareholders, request a court sitting in Basel, Switzerland, our registered office, to appoint a special commissioner. If the general meeting of shareholders rejects the request, one or more shareholders representing at least 10 percent of the share capital or holders of shares in an aggregate nominal value of at least CHF 2.0 million may request that the court appoint a special commissioner. The court will issue such an order if the petitioners can demonstrate that the founder members, the board of directors, any member of the board of directors or our executive management infringed the law or our articles of association and thereby caused damages to the Company or the shareholders. The costs of the investigation would generally be allocated to us and only in exceptional cases to the petitioners.

Compulsory Acquisitions; Appraisal Rights

Business combinations and other transactions that are governed by the Swiss Merger Act (i.e. mergers, demergers, transformations and certain asset transfers) are binding on all shareholders. A statutory merger or demerger requires approval of two-thirds of the shares represented at a general meeting of shareholders and the absolute majority of the nominal value of the shares represented.

If a transaction under the Swiss Merger Act receives all of the necessary consents, all shareholders are compelled to participate in such transaction.

Swiss corporations may be acquired by an acquirer through the direct acquisition of the share capital of the Swiss corporation. The Swiss Merger Act provides for the possibility of a so-called "cash-out" or "squeeze-out" merger if the acquirer controls 90% of the outstanding shares. In these limited circumstances, minority shareholders of the corporation being acquired may be compensated in a form other than through shares of the acquiring corporation (for instance, through cash or securities of a parent corporation of the acquiring corporation or of another corporation). For business combinations effected in the form of a statutory merger or demerger and subject to Swiss law, the Swiss Merger Act provides that if equity rights have not been adequately preserved or compensation payments in the transaction are unreasonable, a shareholder may request the competent court to determine a reasonable amount of compensation.

In addition, under Swiss law, the sale of "all or substantially all of our assets" by us may require the approval of two-thirds of the shares represented at a general meeting of shareholders and the absolute majority of the nominal value of the shares represented. Whether a shareholder resolution is required depends on the particular transaction, including whether the following test is satisfied:

- a core part of our business is sold without which it is economically impracticable or unreasonable to continue to operate the remaining business;
- our assets, after the divestment, are not invested in accordance with our statutory business purpose; and
- the proceeds of the divestment are not earmarked for reinvestment in accordance with our business purpose but, instead, are intended for distribution to our shareholders or for financial investments unrelated to our business.

A shareholder of a Swiss corporation participating in certain major corporate transactions may, under certain circumstances, be entitled to appraisal rights. As a result, such shareholder may, in addition to the consideration (be it in shares or in cash) receive an additional amount to ensure that the shareholder receives the fair value of the shares held by the shareholder. Following a statutory merger or demerger, pursuant to the Swiss Merger Act, shareholders can file an appraisal action against the surviving company. If the consideration is deemed inadequate, the court will determine an adequate compensation payment.

Board Of Directors

Our articles of association provide that the board of directors shall consist of at least 3 and not more than 9 members.

The members of the board of directors and the chairman are elected annually by the general meeting of shareholders for a period until the completion of the subsequent ordinary general meeting of shareholders and are eligible for re-election. Each member of the board of directors must be elected individually.

Powers

The board of directors has the following non-delegable and inalienable powers and duties:

- the ultimate direction of the business of the Company and issuing of the relevant directives;
- laying down the organization of the Company;
- formulating accounting procedures, financial controls and financial planning systems as required for the management of the company;
- nominating and removing persons entrusted with the management and representation of the Company and regulating the power to sign for the Company;
- the ultimate supervision of those persons entrusted with management of the Company, with particular regard to adherence to law, our articles of association, and regulations and directives of the Company;
- issuing the annual report and the compensation report, and preparing for the general meeting of shareholders and carrying out its resolutions; and
- informing the court in case of over-indebtedness.

The board of directors may, while retaining such non-delegable and inalienable powers and duties, delegate some of its powers, in particular direct management, to a single or to several of its members, managing directors, committees or to third parties who need be neither members of the board of directors nor shareholders. Pursuant to Swiss law and Article 25 of our articles of association, details of the delegation and other procedural rules such as quorum requirements must be set forth in the organizational rules issued by the board of directors.

Indemnification of Executive Management and Directors

Subject to Swiss law, Article 29 of our articles of association provides for indemnification of the existing and former members of the board of directors, executive management and their heirs, executors and administrators, against liabilities arising in connection with the performance of their duties in such capacity, and permits us to advance the expenses of defending any act, suit or proceeding to our directors and executive management.

In addition, under general principles of Swiss employment law, an employer may be required to indemnify an employee against losses and expenses incurred by such employee in the proper execution of their duties under the

employment agreement with the employer. See "Comparison of Swiss Law and Delaware Law—Indemnification of directors and executive management and limitation of liability."

We have entered or will enter into indemnification agreements with each of the members of our board of directors and executive management. See "Related Party Transactions—Indemnification Agreements."

Conflict Of Interest; Management Transactions

Swiss law does not have a general provision regarding conflicts of interest. However, the CO contains a provision that requires our directors and executive management to safeguard the Company's interests and imposes a duty of loyalty and duty of care on our directors and executive management. This rule is generally understood to disqualify directors and executive management from participation in decisions that directly affect them. Our directors and executive officers are personally liable to us for any breach of these provisions. In addition, Swiss law contains provisions under which directors and all persons engaged in the Company's management are liable to the Company, each shareholder and the Company's creditors for damages caused by an intentional or negligent violation of their duties. Furthermore, under Swiss law, shareholders and members of the board of directors and their close associates who have unduly and in bad faith received dividends, shares of profits paid to board members, other shares of profits or similar are obliged to return such benefits. They are likewise obliged to return other benefits received from the company to the extent these are manifestly disproportionate to the performance rendered in return and to the company's economic situation.

Upon the closing of this offering, our board of directors will adopt a Code of Business Conduct and Ethics that will cover a broad range of matters, including the handling of conflicts of interest.

Principles of the Compensation of the Board Of Directors and the Executive Management

Pursuant to Swiss law, beginning at our first annual meeting as a public company in 2016 our shareholders must annually approve the compensation of the board of directors and the persons whom the board of directors has, fully or partially, entrusted with the management of the Company. The board of directors must issue, on an annual basis, a written compensation report that must be reviewed together with a report on our business by our auditor. The compensation report must disclose all compensation, loans and other forms of indebtedness granted by the Company, directly or indirectly, to current or former members of the board of directors and executive management to the extent related to their former role within the Company or not on customary market terms.

The disclosure concerning compensation, loans and other forms of indebtedness must include the aggregate amount for the board of directors and the executive management, as well as the particular amount for each member of the board of directors and executive officer, specifying the name and function of each person.

Certain forms of compensation are prohibited for members of our board of directors and executive management, such as:

- severance payments provided for either contractually or in the articles of association (compensation due until the termination of a contractual relationship does not qualify as severance payment);
- advance compensation;
- incentive fees for the acquisition or transfer of companies, or parts thereof, by the Company or by companies being, directly or indirectly, controlled by us;
- loans, other forms of indebtedness, pension benefits not based on occupational pension schemes and performance-based compensation not provided for in the articles of association; and
- equity securities and conversion and option rights awards not provided for in the articles of association.

Compensation to members of the board of directors and executive management for activities in entities that are, directly or indirectly, controlled by the Company is prohibited if the compensation (i) would have been prohibited if it was paid directly by the Company, (ii) is not provided for in the articles of association or (iii) has not been approved by the general meeting of shareholders.

Beginning in 2017, the general meeting of shareholders will annually vote on the proposals of the board of directors with respect to:

- the maximum aggregate amount of the non-performance-related compensation of the board of directors for the subsequent term of office;
- the maximum aggregate amount of possible additional compensation of the board of directors for the preceding business year;
- the maximum aggregate amount of non-performance-related compensation of the executive management for the 12-month period starting on 1 July following the general meeting of shareholders;
- the maximum aggregate amount of variable compensation of the executive management for the current year; and
- the maximum grant of options of shares in the company to the board of directors and the executive management.

In the event that, at the general meeting of shareholders, the shareholders do not approve a proposal of the board of directors, the board of directors may form a new proposal for the maximum aggregate compensation and the particular compensation for each individual, taking into account all relevant factors, and submit the new proposal for approval by the same general meeting of shareholders, at a subsequent extraordinary general meeting or determine a maximum total remuneration or several maximum partial remunerations, subject to the relevant principles of the compensation, and submit these to the next general meeting of shareholders.

In addition to fixed compensation, members of the executive management may be paid variable compensation, depending on the achievement of certain performance criteria. The variable compensation depends on the Company's business success and the individual performance of the member of the executive management based on the achievement of the pre-determined targets during a business year. The board of directors determines annually at the beginning of each relevant business year the decisive targets and their weighting upon proposal by the compensation, nomination and corporate governance committee. The amount of the performance-related compensation for each member of the executive management is determined by the board of directors and may not exceed 100 percent of the respective individual fixed remuneration for the same year.

Compensation may be paid or granted in the form of cash, shares, financial instruments, in kind, or in the form of other types of benefits. The board of directors or, where delegated to it, the compensation, nomination and corporate governance committee shall determine grant, vesting, exercise and forfeiture conditions.

Borrowing Powers

The members of the board of directors and the executive management may not be granted any loans, credits or securities. Excepted from the above are advances in the maximum amount of CHF 0.5 million per person for attorneys' fees, court and other similar costs required for the defense of third-party liability claims to the extent permitted by the articles of association of the Company.

Repurchases of Shares and Purchases of Our Own Shares

The CO limits our right to purchase and hold our own shares. We and our subsidiaries may purchase shares only if and to the extent that (i) we have freely distributable reserves in the amount of the purchase price; and

(ii) the aggregate nominal value of all shares held by us does not exceed 10 percent of our share capital. Pursuant to Swiss law, where shares are acquired in connection with a transfer restriction set out in the articles of association, the foregoing upper limit is 20 percent. If we own shares that exceed the threshold of 10 percent of our share capital, the excess must be sold or cancelled by means of a capital reduction within two years.

Shares held by us or our subsidiaries are not entitled to vote at the general meeting of shareholders but are entitled to the economic benefits applicable to the shares generally, including dividends and pre-emptive rights in the case of share capital increases.

In addition, selective share repurchases are only permitted under certain circumstances. Within these limitations, as is customary for Swiss corporations, we may purchase and sell our own shares from time to time in order to meet imbalances of supply and demand, to provide liquidity and to even out variances in the market price of shares.

Notification And Disclosure Of Substantial Share Interests

The disclosure obligations generally applicable to shareholders of Swiss corporations under the Swiss Financial Market Infrastructure Act do not apply to us since our shares are not listed on a Swiss exchange.

Pursuant to art. 663c of the CO, Swiss corporations whose shares are listed on a stock exchange must disclose their significant shareholders and their shareholdings in the notes to their balance sheet, where this information is known or ought to be known. Significant shareholders are defined as shareholders and groups of shareholders linked through voting rights who hold more than five percent of all voting rights.

Stock Exchange Listing

We have applied to list our common shares on the NASDAQ Global Market under the symbol “CRSP”.

The Depository Trust Company

Initial settlement of the common shares issued in this offering will take place on the consummation date of this offering through The Depository Trust Company, or DTC, in accordance with its customary settlement procedures for equity securities. Each person owning common shares held through DTC must rely on the procedures thereof and on institutions that have accounts therewith to exercise any rights of a holder of the shares.

Transfer Agent and Registrar of Shares

Our share register will initially be kept by American Stock Transfer & Trust Company, LLC, which acts as transfer agent and registrar. The share register reflects only record owners of our shares. Swiss law does not recognize fractional share interests.

COMPARISON OF SWISS LAW AND DELAWARE LAW

The Swiss laws applicable to Swiss corporations and their shareholders differ from laws applicable to U.S. corporations and their shareholders. The following table summarizes significant differences in shareholder rights between the provisions of the Swiss Code of Obligations *(Schweizerisches Obligationenrecht)* and the Swiss Ordinance against excessive compensation in listed stock corporations applicable to our Company, as implemented by the Company in its Articles of Association, and the Delaware General Corporation Law applicable to companies incorporated in Delaware and their shareholders. Please note that this is only a general summary of certain provisions applicable to companies in Delaware. Certain Delaware companies may be permitted to exclude certain of the provisions summarized below in their charter documents.

DELAWARE CORPORATE LAW	SWISS CORPORATE LAW
Mergers and similar arrangements	
Under the Delaware General Corporation Law, with certain exceptions, a merger, consolidation, sale, lease or transfer of all or substantially all of the assets of a corporation must be approved by the board of directors and a majority of the outstanding shares entitled to vote thereon. A shareholder of a Delaware corporation participating in certain major corporate transactions may, under certain circumstances, be entitled to appraisal rights pursuant to which such shareholder may receive cash in the amount of the fair value of the shares held by such shareholder (as determined by a court) in lieu of the consideration such shareholder would otherwise receive in the transaction. The Delaware General Corporation Law also provides that a parent corporation, by resolution of its board of directors, may merge with any subsidiary, of which it owns at least 90.0% of each class of capital stock without a vote by the shareholders of such subsidiary. Upon any such merger, dissenting shareholders of the subsidiary would have appraisal rights.	Under Swiss law, with certain exceptions, a merger or a demerger of the corporation or a sale of all or substantially all of the assets of a corporation must be approved by two-thirds of the voting rights represented at the respective general meeting of shareholders as well as the absolute majority of the nominal value of shares represented at such shareholders' meeting. A shareholder of a Swiss corporation participating in a statutory merger or demerger pursuant to the Swiss Merger Act (Fusionsgesetz*)* can file a lawsuit against the surviving company. If the consideration is deemed "inadequate," such shareholder may, in addition to the consideration (be it in shares or in cash) receive an additional amount to ensure that such shareholder receives the fair value of the shares held by such shareholder. Swiss law also provides that if the merger agreement provides only for a compensation payment, at least 90.0% of all members in the transferring legal entity, who are entitled to vote, shall approve the merger agreement.
Shareholders' suits	
Class actions and derivative actions generally are available to shareholders of a Delaware corporation for, among other things, breach of fiduciary duty, corporate waste and actions not taken in accordance with applicable law. In such actions, the court has discretion to permit the winning party to recover attorneys' fees incurred in connection with such action.	Class actions and derivative actions as such are not available under Swiss law. Nevertheless, certain actions may have a similar effect. A shareholder is entitled to bring suit against directors for breach of their duties and claim the payment of the company's losses or damages both to the corporation and, subject to certain conditions, to the individual shareholder and creditors. Likewise, an appraisal lawsuit won by a shareholder may indirectly compensate all shareholders. Under Swiss law, the winning party is generally entitled to recover or to partially recover attorneys' fees incurred in connection with such action, *provided, however,* that the court has broad discretion to permit the shareholder whose claim has been dismissed to recover attorneys' fees incurred to the extent he or she acted in good faith.

DELAWARE CORPORATE LAW	SWISS CORPORATE LAW
Shareholder vote on board and management compensation	
Under the Delaware General Corporation Law, the board of directors has the authority to fix the compensation of directors, unless otherwise restricted by the certificate of incorporation or bylaws.	Pursuant to the Swiss Ordinance against excessive compensation in listed stock corporations *(Verordnung gegen übermässige Vergütungen bei börsenkotierten Aktiengesellschaften)*, the general meeting of shareholders has the non-transferable right, amongst others, to vote on the fixed and on the variable compensation of the members of the board of directors, of the executive management and of the advisory boards.
Annual vote on board renewal	
Unless directors are elected by written consent in lieu of an annual meeting, directors are elected in an annual meeting of stockholders on a date and at a time designated by or in the manner provided in the bylaws. Re-election is possible. Classified boards are permitted.	The general meeting of shareholders elects annually (i.e. term of office until the end of the following general meeting of shareholders) the members of the board of directors and the members of the compensation, nomination and corporate governance committee individually for a term of office of one year. Re-election is possible.
Indemnification of directors and executive management and limitation of liability	
The Delaware General Corporation Law provides that a certificate of incorporation may contain a provision eliminating or limiting the personal liability of directors (but not other controlling persons) of the corporation for monetary damages for breach of a fiduciary duty as a director, except no provision in the certificate of incorporation may eliminate or limit the liability of a director for: • any breach of a director's duty of loyalty to the corporation or its shareholders; • acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; • statutory liability for unlawful payment of dividends or unlawful stock purchase or redemption; or • any transaction from which the director derived an improper personal benefit.	Under Swiss corporate law, an indemnification by the corporation of a director or member of the executive management in relation to potential personal liability is not effective to the extent the director or member of the executive management intentionally or negligently violated his or her corporate duties towards the corporation (certain views advocate that at least a grossly negligent violation is required to exclude the indemnification). Furthermore, the general meeting of shareholders may discharge the directors and members of the executive management from liability from actions taken during the past financial year. Such discharge is effective only, however, for disclosed facts and only as against the company and those shareholders who approved the discharge or who have since acquired their shares in full knowledge of the discharge. Most violations of corporate law are regarded as violations of duties towards the corporation rather than towards the shareholders. In addition, indemnification of other controlling persons is not permitted under Swiss corporate law, including shareholders of the corporation.
A Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any proceeding, other than an action by or on behalf of the corporation, because the person is or was a director or officer, against liability incurred in connection with the proceeding if the director or officer acted in good	The articles of association of a Swiss corporation may also set forth that the corporation shall indemnify and hold harmless, to the extent permitted by the law, the directors and executive managers out of assets of the corporation against threatened, pending or completed actions.

DELAWARE CORPORATE LAW	SWISS CORPORATE LAW
faith and in a manner reasonably believed to be in, or not opposed to, the best interests of the corporation; and the director or officer, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. Unless ordered by a court, any foregoing indemnification is subject to a determination that the director or officer has met the applicable standard of conduct: • by a majority vote of the directors who are not parties to the proceeding, even though less than a quorum; • by a committee of directors designated by a majority vote of the eligible directors, even though less than a quorum; • by independent legal counsel in a written opinion if there are no eligible directors, or if the eligible directors so direct; or • by the shareholders. Moreover, a Delaware corporation may not indemnify a director or officer in connection with any proceeding in which the director or officer has been adjudged to be liable to the corporation unless and only to the extent that the court determines that, despite the adjudication of liability but in view of all the circumstances of the case, the director or officer is fairly and reasonably entitled to indemnity for those expenses which the court deems proper.	Also, a corporation may enter into and pay for directors' and officers' liability insurance which may cover negligent acts as well.
Directors' fiduciary duties	
A director of a Delaware corporation has a fiduciary duty to the corporation and its shareholders. This duty has two components: • the duty of care; and • the duty of loyalty. The duty of care requires that a director act in good faith, with the care that an ordinarily prudent person would exercise under similar circumstances. Under this duty, a director must inform himself or herself of, and disclose to shareholders, all material information reasonably available regarding a significant transaction.	A director of a Swiss corporation has a fiduciary duty to the corporation only. This duty has two components: • the duty of care; and • the duty of loyalty. The duty of care requires that a director act in good faith, with the care that an ordinarily prudent director would exercise under similar circumstances. Under this duty, a director must inform himself of, and disclose, all material information reasonably available regarding a significant transaction. The duty of loyalty requires that a director act in a manner he reasonably believes to be in the best interests of the corporation. He must not use his corporate position for personal gain or advantage. This duty prohibits in principle self-dealing by a

DELAWARE CORPORATE LAW	SWISS CORPORATE LAW
	director and mandates that the best interest of the corporation take precedence over any interest possessed by a director or officer. The members of the board of directors must furthermore afford the shareholders equal treatment in equal circumstances. The burden of proof for a violation of these duties is with the corporation or with the shareholder bringing a suit against the director.
The duty of loyalty requires that a director act in a manner he or she reasonably believes to be in the best interests of the corporation. He or she must not use his or her corporate position for personal gain or advantage. This duty prohibits self-dealing by a director and mandates that the best interest of the corporation and its shareholders take precedence over any interest possessed by a director, officer or controlling shareholder and not shared by the shareholders generally. In general, actions of a director are presumed to have been made on an informed basis, in good faith and in the honest belief that the action taken was in the best interests of the corporation. However, this presumption may be rebutted by evidence of a breach of one of the fiduciary duties. Should such evidence be presented concerning a transaction by a director, a director must prove the procedural fairness of the transaction, and that the transaction was of fair value to the corporation.	The board of directors of a Swiss corporation manages the business of the corporation, unless responsibility for such management has been delegated to the executive management (for example by organizational rules and comparable bylaws). However, there are several non-transferable duties of the board of directors: • the overall management of the corporation and the issuing of all necessary directives; • the determination of the corporation's organization; • the organization of the accounting, financial control and financial planning systems as required for the management of the corporation; • the appointment and dismissal of persons entrusted with managing and representing the corporation; • overall supervision of the persons entrusted with managing the corporation, in particular with regard to compliance with the law, articles of association, operational regulations and directives; • compilation of the annual report, preparation for the general meeting, the compensation report and implementation of its resolutions; and • notification of the court in the event that the company is over-indebted. The members of the board of directors must perform their duties with all due diligence and safeguard the interests of the corporation in good faith. They must afford the shareholders equal treatment in equal circumstances. The burden of proof for a violation of these duties is with the corporation or with the shareholder bringing a suit against the director.

DELAWARE CORPORATE LAW	SWISS CORPORATE LAW
Shareholder action by written consent	
A Delaware corporation may, in its certificate of incorporation, eliminate the right of shareholders to act by written consent.	Shareholders of a Swiss corporation may only exercise their voting rights in a general meeting of shareholders and may not act by written consents. The articles of association must allow for (independent) proxies to be present at a general meeting of shareholders. The instruction of such (independent) proxies may occur in writing or electronically.
Shareholder proposals	
A shareholder of a Delaware corporation has the right to put any proposal before the annual meeting of shareholders, provided it complies with the notice provisions in the governing documents. A special meeting may be called by the board of directors or any other person authorized to do so in the governing documents, but shareholders may be precluded from calling special meetings.	At any general meeting of shareholders any shareholder may put proposals to the meeting if the proposal is part of an agenda item. No resolution may be made on proposals relating to the agenda items that were not duly notified. Unless the articles of association provide for a lower threshold or for additional shareholders' rights: • shareholders together representing at least 10% of the share capital may demand that a general meeting of shareholders be called for specific agenda items and specific proposals; and • shareholders together representing shares with a nominal value of at least CHF 1.0 million may demand that an agenda item including a specific proposal be put on the agenda for a regularly scheduled general meeting of shareholders, provided such request is made with appropriate notice. Any shareholder can propose candidates for election as directors without prior written notice provided that the election of board members has been included as an agenda item. In addition, any shareholder is entitled, at a general meeting of shareholders and without advance notice, to (i) request information from the board on the affairs of the company (note, however, that the right to obtain such information is limited), (ii) request information from the auditors on the methods and results of their audit, (iii) request to convene an extraordinary general meeting or (iv) request to carry out a special audit and to appoint a special auditor.
Cumulative voting	
Under the Delaware General Corporation Law, cumulative voting for elections of directors is not permitted unless the corporation's certificate of incorporation provides for it.	Cumulative voting is not permitted under Swiss corporate law. Pursuant to Swiss law, shareholders can vote for each proposed candidate, but they are not allowed to cumulate their votes for single candidates. An annual individual election of (i) all members of the board of directors, (ii) the chairman of the board of

DELAWARE CORPORATE LAW	SWISS CORPORATE LAW
	directors, (iii) the members of the compensation, nomination and corporate governance committee, (iv) the election of the independent proxy for a term of office of one year (i.e. until the following annual general meeting) as well as the vote on the compensation for the members of the board of directors and the executive management as well as for the members of the advisory board, if applicable, is mandatory for listed companies. Re-election is permitted.
Removal of directors	
A Delaware corporation with a classified board may be removed only for cause with the approval of a majority of the outstanding shares entitled to vote, unless the certificate of incorporation provides otherwise.	A Swiss corporation may remove, with or without cause, any director at any time with a resolution passed by a simple majority of the shares represented at a general meeting of shareholders. The articles of association may require the approval by a qualified majority of the shares represented at a meeting for the removal of a director.
Transactions with interested shareholders	
The Delaware General Corporation Law generally prohibits a Delaware corporation from engaging in certain business combinations with an "interested shareholder" for three years following the date that such person becomes an interested shareholder. An interested shareholder generally is a person or group who or which owns or owned 15.0% or more of the corporation's outstanding voting stock within the past three years.	No such rule applies to a Swiss corporation.
Dissolution; Winding up	
Unless the board of directors of a Delaware corporation approves the proposal to dissolve, dissolution must be approved by shareholders holding 100.0% of the total voting power of the corporation. Only if the dissolution is initiated by the board of directors may it be approved by a simple majority of the corporation's outstanding shares. Delaware law allows a Delaware corporation to include in its certificate of incorporation a supermajority voting requirement in connection with dissolutions initiated by the board.	A dissolution of a Swiss corporation requires the approval by two-thirds of the voting rights represented as well as the absolute majority of the nominal value of the share capital represented at a general meeting of shareholders passing a resolution on such dissolution. The articles of association may increase the voting thresholds required for such a resolution.
Variation of rights of shares	
A Delaware corporation may vary the rights of a class of shares with the approval of a majority of the outstanding shares of such class, unless the certificate of incorporation provides otherwise.	The general shareholder meeting of a Swiss corporation may resolve that preference shares be issued or that existing shares be converted into preference shares with a resolution passed by a simple majority of the shares represented at the general meeting of shareholders. Where a company has issued preference shares, further preference shares conferring preferential rights over the existing preference shares may be issued only with the consent of both a special meeting of the adversely affected holders of the existing preference shares and of

DELAWARE CORPORATE LAW	SWISS CORPORATE LAW
	a general meeting of all shareholders, unless otherwise provided in the articles of association. Shares with preferential voting rights are not regarded a special class for these purposes.
Amendment of governing documents	
A Delaware corporation's governing documents may be amended with the approval of a majority of the outstanding shares entitled to vote, unless the certificate of incorporation provides otherwise.	The articles of association of a Swiss corporation may be amended with a resolution passed by a simple majority of the shares represented at such meeting, unless otherwise provided in the articles of association. There are a number of resolutions, such as an amendment of the stated purpose of the corporation, the introduction of authorized and conditional capital and the introduction of shares with preferential voting rights that require the approval by two-thirds of the voting rights represented and an absolute majority of the nominal value of the shares represented at a shareholders' meeting. The articles of association may increase the voting thresholds.
Inspection of books and records	
Shareholders of a Delaware corporation, upon written demand under oath stating the purpose thereof, have the right during the usual hours for business to inspect for any proper purpose, and to obtain copies of list(s) of shareholders and other books and records of the corporation and its subsidiaries, if any, to the extent the books and records of such subsidiaries are available to the corporation.	Shareholders of a Swiss corporation may only inspect books and records if the general meeting of shareholders or the board of directors approved such inspection. The information may be refused where providing it would jeopardize the corporation's trade secrets or other interests warranting protection. A shareholder is only entitled to receive information to the extent required to exercise such shareholders' rights, subject to the interests of the corporation. The right to inspect the share register is limited to the right to inspect that shareholder's own entry in the share register.
Payment of dividends	
The board of directors may approve a dividend without shareholder approval. Subject to any restrictions contained in its certificate of incorporation, the board may declare and pay dividends upon the shares of its capital stock either: • out of its surplus; or • in case there is no such surplus, out of its net profits for the fiscal year in which the dividend is declared and/or the preceding fiscal year. Stockholder approval is required to authorize capital stock in excess of that provided in the charter. Directors may issue authorized shares without stockholder approval.	Dividend payments are subject to the approval of the general meeting of shareholders. The board of directors may propose to shareholders that a dividend shall be paid but cannot itself authorize the distribution. Payments out of the Company's share capital (in other words, the aggregate nominal value of the Company's registered share capital) in the form of dividends are not allowed; however, payments out of share capital may be made by way of a capital reduction only. Dividends may be paid only from the profits brought forward from the previous business years or if the Company has distributable reserves, each as will be presented on the Company's audited annual stand-alone balance sheet. The dividend may

DELAWARE CORPORATE LAW	SWISS CORPORATE LAW
	be determined only after the allocations to reserves required by the law and the articles of association have been deducted.
	Creation and issuance of new shares
All creation of shares require the board of directors to adopt a resolution or resolutions, pursuant to authority expressly vested in the board of directors by the provisions of the company's certificate of incorporation.	All creation of shares requires a shareholders' resolution. An authorized or contingent capital increase requires at least two-thirds of the voting rights represented at the general meeting of shareholders and an absolute majority of the nominal value of shares represented. Authorized shares can be, once created by shareholder resolution, issued by the board of directors (subject to fulfillment of the authorization). Conditional shares are created and issued through the exercise of options and conversion rights related to debt instruments issued by the board of directors or such rights issued to employees.

COMMON SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there was no public market for our common shares. Future sales of substantial amounts of our common shares in the public market could adversely affect market prices prevailing from time to time. Furthermore, because only a limited number of common shares will be available for sale shortly after this offering due to existing contractual and legal restrictions on resale as described below, there may be sales of substantial amounts of our common shares in the public market after such restrictions lapse. This may adversely affect the prevailing market price and our ability to raise equity capital in the future.

Upon completion of this offering, we will have 39,748,134 common shares outstanding assuming no exercise of the underwriters' over-allotment option. Of these shares, 4,700,000 common shares, or 5,405,000 common shares if the underwriters exercise their over-allotment option in full to purchase additional common shares, sold in this offering will be freely transferable without restriction or registration under the Securities Act, except for any common shares purchased by one of our existing "affiliates," as that term is defined in Rule 144 under the Securities Act and any common shares purchased through the directed share program. The remaining 35,048,134 common shares outstanding are "restricted shares" as defined in Rule 144. Restricted shares may be sold in the public market only if registered or if they qualify for an exemption from registration under Rules 144 or 701 of the Securities Act. Additionally, 34,424,030 of these shares are subject to a contractual 180-day lock-up period described below and may only be sold in the public market after the expiration of the 180-day period and only if registered or pursuant to an exemption under Rules 144 or 701, which are summarized below.

Additionally, of the options to purchase 3,765,927 common shares outstanding as of September 30, 2016 and assuming no outstanding options are exercised and no exercise of the underwriters' over-allotment option to purchase additional shares, options exercisable for 1,163,120 common shares will be vested and eligible for sale 180 days after the date of this prospectus, excluding options that vest based on performance conditions.

Rule 144

In general, a person who has beneficially owned our common shares that are restricted shares for at least six months would be entitled to sell such securities, provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, the sale and (ii) we are subject to, and in compliance with certain of, the Exchange Act periodic reporting requirements for at least 90 days before the sale. If such person has beneficially owned such common shares for at least one year, then the requirement in clause (ii) will not apply to the sale.

Persons who have beneficially owned our common shares that are restricted shares for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of our common shares then outstanding, which will equal approximately common shares immediately after this offering, assuming no exercise of the underwriters' over-allotment option; or
- the average weekly trading volume of our common shares on the NASDAQ during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

provided, in each case, that we are subject to, and in compliance with certain of, the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales must also comply with the manner of sale and notice provisions of Rule 144.

Affiliate resales under Rule 144 are also subject to the availability of current public information about us. In addition, if the number of shares being sold under Rule 144 by an affiliate during any three-month period exceeds 5,000 shares or has an aggregate sale price in excess of $50,000, the seller must file a notice on Form 144 with the Securities and Exchange Commission and concurrently with either the placing of a sale order with the broker or the execution directly with a market maker.

In general, under Rule 144 as currently in effect, once we have been subject to the public company reporting requirements of Section 13 or Section 15(d) of the Exchange Act for at least 90 days, a person who is not deemed to have been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and who has beneficially owned the shares proposed to be sold for at least six months, including the holding period of any prior owner other than our affiliates, is entitled to sell those shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then that person would be entitled to sell those shares without complying with any of the requirements of Rule 144.

Rule 701

In general, under Rule 701, any of our employees, directors, officers, consultants or advisors who purchases shares from us in connection with a compensatory share or option plan or other written agreement before the effective date of this offering is entitled to resell such shares 90 days after the effective date of this offering in reliance on Rule 144, without having to comply with the holding period requirements or other restrictions contained in Rule 701.

The SEC has indicated that Rule 701 will apply to typical share options granted by an issuer before it becomes subject to the reporting requirements of the Exchange Act, along with the shares acquired upon exercise of such options, including exercises after the date of this prospectus. Securities issued in reliance on Rule 701 are restricted securities and, subject to the contractual restrictions described below, beginning 90 days after the date of this prospectus, may be sold by persons other than "affiliates," as defined in Rule 144, subject only to the manner of sale provisions of Rule 144 and by "affiliates" under Rule 144 without compliance with the one-year minimum holding period requirement.

Shareholder Registration Rights

Pursuant to the Registration Rights Agreement, which will become automatically effective upon the termination of the shareholders' agreement at the closing of this offering, certain holders of our common shares, including certain holders of five percent of our capital stock and entities affiliated with certain of our directors, will be entitled to certain rights with respect to registration of such shares under the Securities Act. These shares are referred to as registrable securities. Beginning 180 days after the date of the underwriting agreement, the holders of 27,135,884 common shares, including those issuable upon the conversion of shares of our preferred shares upon the closing of this offering, are entitled to the demand, piggyback and Form S-3 registration rights described below.

The registration of registrable securities pursuant to the exercise of the registration rights would enable the holders to trade these registrable securities without restriction under the Securities Act when the applicable registration statement is declared effective. We will pay the registration expenses of the shares registered pursuant to the demand, piggyback and Form S-3 registrations described below.

Generally, in an underwritten offering, the underwriters, if any, have the right, subject to specified conditions, to limit the number of registrable securities the holders may include. The demand, piggyback and Form S-3 registration rights described below will expire five years after the closing of this offering, or with respect to any particular holder, at such time that such holder can sell its shares under Rule 144 of the Securities Act during any ninety (90) day period.

Demand Registration Rights

The holders of the registrable securities will be entitled to certain demand registration rights. At any time beginning 180 days following the effective date of the registration statement, of which this prospectus forms a part, the holders of at least two-thirds ($66^{2/3}\%$) of the registrable securities then outstanding may make a written

request that we register all or a portion of their registrable securities, subject to certain specified exceptions. Such request for registration must cover securities the aggregate proceeds of which, after payment of underwriting discounts, commissions and other expenses related to such registration, would exceed $10,000,000. In no event will we be required to effect more than two (2) demand registrations.

Piggyback Registration Rights

In connection with this offering, the holders of registrable securities were entitled to, and the necessary percentage of holders waived, their rights to notice of this offering and to include their registrable securities in this offering. If we propose to register for offer and sale any of our securities under the Securities Act in another offering for cash, either for our own account or for the account of other security holders, the holders of registrable securities will be entitled to certain "piggyback" registration rights allowing them to include their registrable securities in such registration, subject to certain marketing and other limitations. As a result, whenever we propose to file a registration statement under the Securities Act in connection with a public offering for our own account or for the account of any shareholder, the holders of these registrable securities are entitled to notice of the registration and have the right, subject to limitations that the underwriters may impose on the number of shares included in the registration, to include their registrable securities in the registration.

Form S-3 Registration Rights

Upon the completion of this offering, the holders of registrable securities will be entitled to certain Form S-3 registration rights. Any holder of registrable securities can make a request that we register for offer and sale all or any portion of their registrable securities on Form S-3 or any similar short form registration statement if we are qualified to file a registration statement on Form S-3, subject to certain specified exceptions. Such request for registration on Form S-3 must cover securities the aggregate offering price of which, before payment of the underwriting discounts and commissions, equals or exceeds $2.0 million. We will not be required to effect more than one (1) registration on Form S-3 within any 12-month period.

Options to Purchase Common Shares

We intend to file one or more registration statements on Form S-8 under the Securities Act to register all common shares issued or issuable pursuant to the exercise of outstanding options and reserved for issuance under our new omnibus equity incentive plan. We expect to file the registration statements, which will become effective immediately upon filing, shortly after the date of this prospectus. Shares covered by these registration statements will then be eligible for sale in the public markets, subject to vesting restrictions and any applicable holding periods, any applicable lock-up agreements described below and Rule 144 limitations applicable to affiliates.

Regulation S

Regulation S provides generally that sales made in offshore transactions are not subject to the registration or prospectus-delivery requirements of the Securities Act.

Lock-up Agreements

All of our directors, executive officers and the holders of all of our capital stock have agreed, subject to limited exceptions, not to offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase or otherwise dispose of, directly or indirectly, or enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common shares or such other securities for a period of 180 days after the date of this prospectus without the prior written consent of Citigroup Global Markets Inc. and Piper Jaffray & Co. See "Underwriting."

TAXATION

The following summary does not purport to address all tax consequences of this offering, the acquisition, the ownership and sale or other disposition of our common shares (such shares for the purposes of this "Taxation" section, "Shares") and does not take into account the specific circumstances of any particular investor. This summary is based on the tax laws, regulations and regulatory practices of Switzerland and the United States as in effect on the date hereof, which are subject to change (or subject to changes in interpretation), possibly with retroactive effect.

Current and prospective shareholders are advised to consult their own tax advisers in light of their particular circumstances as to the Swiss or U.S. tax laws, regulations and regulatory practices that could be relevant for them in connection with this offering, the acquiring, owning and selling or otherwise disposing of Shares and receiving dividends and similar cash or in-kind distributions on Shares (including dividends on liquidation proceeds and stock dividends) or distributions on Shares based upon a capital reduction (Kapitalherabsetzung durch Nennwertreduktion) or reserves paid out of capital contributions (Kapitaleinlagen) and the consequences thereof under the tax laws, regulations and regulatory practices of Switzerland and/or the United States.

Swiss Tax Considerations

Swiss Federal, Cantonal And Communal Individual Income Tax And Corporate Income Tax

Non-Resident Shareholders

Except as discussed in the sections titled "—*Swiss Federal Withholding Taxes*" and "—*Foreign Financial Withholding Taxes*," shareholders who are not resident in Switzerland for tax purposes, and who, during the relevant taxation year, have not engaged in a trade or business carried on through a permanent establishment situated in Switzerland for tax purposes (all such shareholders for purposes of this section, "Non-Resident Shareholders"), will not be subject to any Swiss federal, cantonal and communal income tax on dividends and similar cash or in-kind distributions on Shares (including dividends on liquidation proceeds and stock dividends) (such dividends for the purposes of this, "Dividends"), distributions based upon a capital reduction (*Kapitalherabsetzung durch Nennwertreduktion*) and reserves paid out of capital contributions (*Kapitaleinlagen*) on Shares, or capital gains realized on the sale or other disposition of Shares.

Resident Private Shareholders

Swiss resident individuals who hold their Shares as private assets are required to include Dividends, but not distributions based upon a capital reduction (*Kapitalherabsetzung durch Nennwertreduktion*) and reserves paid out of capital contributions (*Kapitaleinlagen*), in their personal income tax return and are subject to Swiss federal, cantonal and communal income tax on any net taxable income for the relevant taxation period, including the Dividends, but not the distributions based upon a capital reduction (*Kapitalherabsetzung durch Nennwertreduktion*) and reserves paid out of capital contributions (*Kapitaleinlagen*). Capital gains resulting from the sale or other disposition of Shares are generally not subject to Swiss federal, cantonal and communal income tax, and conversely, capital losses are not tax-deductible for Resident Private Shareholders (the shareholders referred to in this paragraph for the purposes of this section, "Resident Private Shareholders"). See "—Domestic Commercial Shareholders" below for a summary of the taxation treatment applicable to Swiss resident individuals, who, for income tax purposes, are classified as "professional securities dealers".

Domestic Commercial Shareholders

Corporate and individual shareholders who are resident in Switzerland for tax purposes, and corporate and individual shareholders who are not resident in Switzerland, and who, in each case, hold their Shares as part of a trade or business carried on in Switzerland, in the case of corporate and individual shareholders not resident in Switzerland, through a permanent establishment situated, for tax purposes, in Switzerland, are required to recognize Dividends, distributions based upon a capital reduction (*Kapitalherabsetzung durch*

Nennwertreduktion) and reserves paid out of capital contributions (*Kapitaleinlagen*) received on Shares and capital gains or losses realized on the sale or other disposition of Shares in their income statement for the relevant taxation period and are subject to Swiss federal, cantonal and communal individual or corporate income tax, as the case may be, on any net taxable earnings for such taxation period. The same taxation treatment also applies to Swiss-resident private individuals who, for income tax purposes, are classified as "professional securities dealers" for reasons of, *inter alia*, frequent dealing, or leveraged investments, in shares and other securities (the shareholders referred to in this paragraph for purposes of this section, "Domestic Commercial Shareholders"). Domestic Commercial Shareholders who are corporate taxpayers may be eligible for dividend relief (*Beteiligungsabzug*) in respect of Dividends and distributions based upon a capital reduction (*Kapitalherabsetzung durch Nennwertreduktion*) and reserves paid out of capital contributions (*Kapitaleinlagen*) if the Shares held by them as part of a Swiss business have an aggregate market value of at least CHF 1 million.

Swiss Cantonal and Communal Private Wealth Tax and Capital Taxes

Non-Resident Shareholders

Non-Resident Shareholders are not subject to Swiss cantonal and communal private wealth tax or capital tax.

Resident Private Shareholders and Domestic Commercial Shareholders

Resident Private Shareholders and Domestic Commercial Shareholders who are individuals are required to report their Shares as part of private wealth or their Swiss business assets, as the case may be, and will be subject to Swiss cantonal and communal private wealth tax on any net taxable wealth (including Shares), in the case of Domestic Commercial Shareholders to the extent the aggregate taxable wealth is allocable to Switzerland. Domestic Commercial Shareholders who are corporate taxpayers are subject to Swiss cantonal and communal capital tax on taxable capital to the extent the aggregate taxable capital is allocable to Switzerland.

Swiss Federal Withholding Tax

Dividends that the Company pays on the Shares are subject to Swiss federal withholding tax *(Verrechnungssteuer)* at a rate of 35% on the gross amount of the Dividend. The Company is required to withhold the Swiss federal withholding tax from the Dividend and remit it to the Swiss Federal Tax Administration. Distributions based upon a capital reduction *(Kapitalherabsetzung durch Nennwertreduktion)* and reserves paid out of capital contributions *(Kapitaleinlagen)* are not subject to Swiss federal withholding tax.

The Swiss federal withholding tax on a Dividend will be refundable in full to a Resident Private Shareholder and to a Domestic Commercial Shareholder to the extent the Shares are allocable to Switzerland, who, in each case, *inter alia*, as a condition to a refund, duly reports the Dividend in his individual income tax return as income or recognizes the Dividend in his income statement as earnings, as applicable.

A Non-Resident Shareholder may be entitled to a full or partial refund of the Swiss federal withholding tax on a Dividend if the country of his or her residence for tax purposes has entered into a bilateral treaty for the avoidance of double taxation with Switzerland and the conditions of such treaty are met. Such shareholders should be aware that the procedures for claiming treaty benefits (and the time required for obtaining a refund) might differ from country to country.

For example, a shareholder who is a resident of the U.S. for the purposes of the Convention between the U.S. and Switzerland for the Avoidance of Double Taxation with Respect to Taxes or Income, is eligible for a refund of the amount of the withholding tax in excess of the 15% treaty rate, or in excess of the 5% reduced treaty rate for qualifying corporate shareholders with at least 10% participation in the Company's voting stock, or for a full refund in the case of qualified pension funds, provided, in each case, such shareholder: (i) qualifies for benefits under the treaty (ii) qualifies as beneficial owner of the Dividends; and (iii) does not conduct business through a permanent establishment or fixed base in Switzerland to which the Shares are attributable. The

applicable refund request form may be filed with the Swiss Federal Tax Administration following receipt of the Dividend and the relevant deduction certificate, however no later than 31 December of the third year following the calendar year in which the Dividend was payable.

Swiss Federal Stamp Taxes

The Company will be subject to and pay to the Swiss Federal Tax Administration a 1% Swiss federal issuance stamp tax *(Emissionsabgabe)* on the consideration received by it for the issuance of the Shares less certain costs incurred in connection with the issuance.

The issuance of the Shares to the initial shareholders at the offering price is not subject to Swiss federal securities turnover tax *(Umsatzabgabe)*.

Any subsequent dealings in the Shares, where a bank or another securities dealer in Switzerland, as defined in the Swiss Federal Stamp Tax Act, acts as an intermediary, or is a party, to the transaction, are, subject to certain exemptions provided for in the Swiss Federal Stamp Tax Act, subject to Swiss securities turnover tax at an aggregate tax rate of 0.15% of the consideration paid for such Shares.

Foreign Final Withholding Tax

Under treaties on final withholding taxes of Switzerland with the United Kingdom and Austria (each, a "Contracting State") a Swiss paying agent, as defined in the treaties, is required to levy a flat-rate final withholding tax *(Abgeltungssteuer)* at rates specified in the treaties on certain capital gains and income items (interest, dividends, other income items, all as defined in the treaties), deriving from assets, including the Shares, held in accounts or deposits with a Swiss paying agent by (i) an individual resident in a Contracting State or, (ii) if certain requirements are met, by a domiciliary company *(Sitzgesellschaft)*, an insurance company in connection with a so-called insurance wrapper (*Versicherungsmantel*) or other individuals if the beneficial owner is an individual resident in a Contracting State. The flat-rate tax withheld substitutes the ordinary income tax on the respective capital gains and income items in the Contracting State where the individual is tax resident. In order to avoid the withholding of the flat-rate tax by the Swiss paying agent, such individuals may opt for a disclosure of the respective capital gains and income items to the tax authorities of the Contracting State where they are tax residents. If Swiss federal withholding tax of 35% has been withheld on Dividends, the Swiss paying agent will—to the extent provided in the applicable bilateral treaty for the avoidance of double taxation between Switzerland and the Contracting State—in its own name and on behalf of the relevant shareholder file with the Swiss tax authorities a request for the partial refund of the Swiss federal withholding tax. The Swiss federal withholding tax, which is not refundable according to the bilateral tax treaty (residual tax), is credited against the flat-rate final withholding tax. Subject to the pending ratification of the amendment protocol of May 27, 2015 to the agreement of October 26, 2004 between the European Community and Switzerland, and the conclusion of a superseding agreement between each of the UK and Austria, terminating the treaties, Swiss paying agents will not have to apply the final withholding tax regimes anymore, as they will have to process the automatic exchange of information from that time for UK and Austrian residents.

Material U.S. Federal Income Tax Considerations to U.S. Holders

The following is a summary of material U.S. federal income tax considerations relating to the acquisition, ownership and disposition of the common shares by a U.S. holder (as defined below). This summary addresses only the U.S. federal income tax considerations for U.S. holders that are initial purchasers of the common shares pursuant to this offering and that will hold such common shares as capital assets (generally, property held for investment) for U.S. federal income tax purposes and does not apply to any shares acquired in the concurrent private placement. This summary does not address all U.S. federal income tax matters that may be relevant to a particular U.S. holder. This summary does not address tax considerations applicable to a holder of common shares that may be subject to special tax rules including, without limitation, the following:

- banks, financial institutions or insurance companies;
- brokers, dealers or traders in securities, currencies, commodities, or notional principal contracts;

- tax-exempt entities or organizations, including an “individual retirement account” or “Roth IRA” as defined in Section 408 or 408A of the Code (as defined below), respectively;
- real estate investment trusts, regulated investment companies or grantor trusts;
- persons that hold the common shares as part of a “hedging,” “integrated” or “conversion” transaction or as a position in a “straddle” for U.S. federal income tax purposes;
- partnerships (including entities classified as partnerships for U.S. federal income tax purposes) or other pass-through entities, or persons that will hold the common shares through such an entity;
- certain former citizens or long term residents of the United States;
- holders that own directly, indirectly, or through attribution 10% or more of the voting power or value of the common shares; and
- holders that have a “functional currency” for U.S. federal income tax purposes other than the U.S. dollar.

Further, this summary does not address the U.S. federal estate, gift, or alternative minimum tax considerations, or any U.S. state, local, or non-U.S. tax considerations of the acquisition, ownership and disposition of the common shares.

This description is based on the U.S. Internal Revenue Code of 1986, as amended, or the Code; existing, proposed and temporary U.S. Treasury Regulations promulgated thereunder, administrative and judicial interpretations thereof; and the income tax treaty between the United States and the Swiss Confederation in each case as in effect and available on the date hereof. All the foregoing is subject to change, which change could apply retroactively, and to differing interpretations, all of which could affect the tax considerations described below. We have not received nor do we expect to seek a ruling from the U.S. Internal Revenue Service, or the IRS, regarding any matter discussed herein. There can be no assurances that the IRS will not take a contrary or different position concerning the tax consequences of the acquisition, ownership and disposition of the common shares or that such a position would not be sustained. Holders should consult their own tax advisers concerning the U.S. federal, state, local and non-U.S. tax consequences of acquiring, owning, and disposing of the common shares in their particular circumstances.

For the purposes of this summary, a “U.S. holder” is a beneficial owner of common shares that is (or is treated as), for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or other entity that is treated as a corporation for U.S. federal income tax purposes, created or organized in or under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust, if a court within the United States is able to exercise primary supervision over its administration and one or more U.S. persons have the authority to control all of the substantial decisions of such trust or has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a United States person.

If a partnership (or any other entity treated as a partnership for U.S. federal income tax purposes) holds common shares, the U.S. federal income tax consequences relating to an investment in the common shares will depend in part upon the status of the partner and the activities of the partnership. Such a partner or partnership should consult its tax advisor regarding the U.S. federal income tax considerations of acquiring, owning and disposing of the common shares in its particular circumstances.

As indicated below, this discussion is subject to U.S. federal income tax rules applicable to a "passive foreign investment company," or a PFIC. As discussed below under "Passive Foreign Investment Company Considerations," we believe we were a PFIC for the 2015 taxable year and may be a PFIC with respect to the 2016 taxable year. In addition, as discussed below under "Controlled Foreign Corporation Considerations," we believe that we were a CFC for the taxable year ended December 31, 2015 and may be a CFC for the taxable year of this offering. In addition, it is possible that we will be a CFC for a taxable year following the year of this offering, and if we are a CFC, this discussion assumes that a "U.S. holder" does not include a holder that is a United States person (within the meaning of the Code) who owns or is considered to own 10% or more of the total combined voting power of all classes of our stock entitled to vote. See "Controlled Foreign Corporation Considerations" for more information.

Persons considering an investment in the common shares should consult their own tax advisors as to the particular tax consequences applicable to them relating to the acquisition, ownership and disposition of the common shares, including the applicability of U.S. federal, state and local tax laws and non-U.S. tax laws.

Distributions

Although we do not currently plan to pay dividends, and subject to the discussion under "Passive Foreign Investment Company Considerations" and "Controlled Foreign Corporation Considerations," below, the gross amount of any distribution (before reduction for any amounts withheld in respect of Swiss withholding tax, if any) actually or constructively received by a U.S. holder with respect to common shares will be taxable to the U.S. holder as a dividend to the extent of the U.S. holder's pro rata share of our current and accumulated earnings and profits as determined under U.S. federal income tax principles. Distributions in excess of earnings and profits will be non-taxable to the U.S. holder to the extent of, and will be applied against and reduce, the U.S. holder's adjusted tax basis in the common shares. Distributions in excess of earnings and profits and such adjusted tax basis will generally be taxable to the U.S. holder as either long-term or short-term capital gain depending upon whether the U.S. holder has held the common shares for more than one year as of the time such distribution is received. However, since we do not calculate our earnings and profits under U.S. federal income tax principles, it is expected that any distribution will be reported as a dividend, even if that distribution would otherwise be treated as a non-taxable return of capital or as capital gain under the rules described above. Non-corporate U.S. holders may qualify for the preferential rates of taxation with respect to dividends on common shares applicable to long-term capital gains (i.e., gains from the sale of capital assets held for more than one year) applicable to qualified dividend income (as discussed below) if we are a "qualified foreign corporation" and certain other requirements (discussed below) are met. A non-United States corporation (other than a corporation that is classified as a PFIC for the taxable year in which the dividend is paid or the preceding taxable year) generally will be considered to be a qualified foreign corporation (a) if it is eligible for the benefits of a comprehensive tax treaty with the United States which the Secretary of Treasury of the United States determines is satisfactory for purposes of this provision and which includes an exchange of information provision, or (b) with respect to any dividend it pays on shares of stock which are readily tradable on an established securities market in the United States. We expect that the common shares will be listed on NASDAQ, which is an established securities market in the United States, and we expect the common shares to be readily tradable on NASDAQ. However, there can be no assurance that the common shares will be considered readily tradable on an established securities market in the United States in later years. The company, which is incorporated under the laws of the Swiss Confederation, believes that it qualifies as a resident of Switzerland for purposes of, and is eligible for the benefits of, The Convention between the United States of America and the Swiss Confederation for the Avoidance of Double Taxation with Respect to Taxes on Income, signed on October 2, 1996, or the U.S.-Swiss Tax Treaty, although there can be no assurance in this regard. Further, the IRS has determined that the U.S.-Swiss Tax Treaty is satisfactory for purposes of the qualified dividend rules and that it includes an exchange-of-information program. Therefore, subject to the discussion under "Passive Foreign Investment Company Considerations" and "Controlled Foreign Corporation Considerations," below, such dividends will generally be "qualified dividend income" in the hands of individual U.S. holders, provided that a holding period requirement (more than 60 days of ownership, without protection from the risk of loss, during the 121-day period beginning 60 days before the

ex-dividend date) and certain other requirements are met. The dividends will not be eligible for the dividends-received deduction generally allowed to corporate U.S. holders.

A U.S. holder generally may claim the amount of any Swiss withholding tax as either a deduction from gross income or a credit against U.S. federal income tax liability. However, the foreign tax credit is subject to numerous complex limitations that must be determined and applied on an individual basis. Generally, the credit cannot exceed the proportionate share of a U.S. holder's U.S. federal income tax liability that such U.S. holder's taxable income bears to such U.S. holder's worldwide taxable income. In applying this limitation, a U.S. holder's various items of income and deduction must be classified, under complex rules, as either "foreign source" or "U.S. source." In addition, this limitation is calculated separately with respect to specific categories of income. The amount of a distribution with respect to the common shares that is treated as a "dividend" may be lower for U.S. federal income tax purposes than it is for Swiss income tax purposes, potentially resulting in a reduced foreign tax credit for the U.S. holder. Each U.S. holder should consult its own tax advisors regarding the foreign tax credit rules.

While we do not currently plan to pay any dividends, the currency of any dividends that we may pay is subject to future determination. If we pay any such dividends in a currency other than U.S. dollars (a "foreign currency"), the amount of a distribution paid to a U.S. holder in a foreign currency will be the U.S. dollar value of the foreign currency calculated by reference to the spot exchange rate on the day the U.S. holder receives the distribution, regardless of whether the foreign currency is converted into U.S. dollars at that time. Any foreign currency gain or loss a U.S. holder realizes on a subsequent conversion of foreign currency into U.S. dollars will be U.S. source ordinary income or loss. If dividends received in a foreign currency are converted into U.S. dollars on the day they are received, a U.S. holder should not be required to recognize foreign currency gain or loss in respect of the dividend.

Sale, Exchange or Other Taxable Disposition of the Common Shares

A U.S. holder will generally recognize gain or loss for U.S. federal income tax purposes upon the sale, exchange or other taxable disposition of common shares in an amount equal to the difference between the U.S. dollar value of the amount realized from such sale or exchange and the U.S. holder's tax basis for those common shares. Subject to the discussion under "Passive Foreign Investment Company Considerations" and "Controlled Foreign Corporation Considerations" below, this gain or loss will generally be a capital gain or loss. The adjusted tax basis in the common shares generally will be equal to the U.S. holder's U.S. dollar purchase price of such common shares. Capital gain from the sale, exchange or other taxable disposition of common shares of a non-corporate U.S. holder is generally eligible for a preferential rate of taxation applicable to capital gains, if the non-corporate U.S. holder's holding period determined at the time of such sale, exchange or other taxable disposition for such common shares exceeds one year (i.e., such gain is long-term taxable gain). The deductibility of capital losses for U.S. federal income tax purposes is subject to limitations under the Code. Any such gain or loss that a U.S. holder recognizes generally will be treated as U.S. source income or loss for foreign tax credit limitation purposes.

Medicare Tax

Certain U.S. holders that are individuals, estates or trusts are subject to a 3.8% tax on all or a portion of their "net investment income," which may include all or a portion of their dividend income and net gains from the disposition of common shares. Each U.S. holder that is an individual, estate or trust is urged to consult its tax advisors regarding the applicability of the Medicare tax to its income and gains in respect of its investment in the common shares.

Controlled Foreign Corporation Considerations

Each "Ten Percent Shareholder" (as defined below) in a non-U.S. corporation that is classified as a "controlled foreign corporation," or a CFC, for United States federal income tax purposes generally is required to

include in income for U.S. federal tax purposes such Ten Percent Shareholder's pro rata share of the CFC's "Subpart F income" and investment of earnings in U.S. property, even if the CFC has made no distributions to its shareholders. Subpart F income generally includes dividends, interest, rents and royalties, gains from the sale of securities and income from certain transactions with related parties. In addition, a Ten Percent Shareholder that realizes gain from the sale or exchange of shares in the CFC may be required to classify a portion of such gain as dividend income rather than capital gain (see discussion above in "—Distributions" regarding the tax treatment of dividend income). A non-U.S. corporation generally will be classified as a CFC for United States federal income tax purposes if Ten Percent Shareholders own, directly or indirectly, more than 50% of either the total combined voting power of all classes of stock of such corporation entitled to vote or of the total value of the stock of such corporation. A "Ten Percent Shareholder" is a United States person (as defined by the Code) who owns or is considered to own 10% or more of the total combined voting power of all classes of stock entitled to vote of such corporation. The determination of CFC status is complex and includes attribution rules, the application of which is not entirely certain.

We believe that we were a CFC for the taxable year ended December 31, 2015; however, our CFC status for the current taxable year is uncertain and we may be a CFC for the current taxable year. It is possible that, following this offering, a shareholder treated as a U.S. person for U.S. federal income tax purposes will acquire, directly or indirectly, enough shares to be treated as a Ten Percent Shareholder. We also believe that immediately following this offering we may have certain shareholders that are Ten Percent Shareholders for United States federal income tax purposes. U.S. holders should consult their own tax advisors with respect to the potential adverse U.S. tax consequences of becoming a Ten Percent Shareholder in a CFC. If we are classified as both a CFC and a PFIC, we generally will not be treated as a PFIC with respect to those U.S. holders that meet the definition of a Ten Percent Shareholder during the period in which we are a CFC.

Passive Foreign Investment Company Considerations

If we are classified as a passive foreign investment company in any taxable year, a U.S. holder would be subject to special rules generally intended to reduce or eliminate any benefits from the deferral of U.S. federal income tax that a U.S. holder could derive from investing in a non-U.S. company that does not distribute all of its earnings on a current basis.

A corporation organized outside the United States generally will be classified as a PFIC for U.S. federal income tax purposes in any taxable year in which, after applying certain look-through rules with respect to the income and assets of its subsidiaries, either: (i) at least 75% of its gross income is "passive income," the Income Test or (ii) at least 50% of the average quarterly value of its total gross assets (which, assuming we were a non-publicly traded CFC for the year being tested, must be measured by the adjusted tax basis of our assets or, if we were a publicly traded CFC or not a CFC for such year, the total value of our assets may be determined in part by reference to the quarterly market value of our common shares, which may be volatile) is attributable to assets that produce "passive income" or are held for the production of "passive income," the Asset Test.

Passive income for this purpose generally includes dividends, interest, royalties, rents, gains from commodities and securities transactions, the excess of gains over losses from the disposition of assets which produce passive income, and includes amounts derived by reason of the temporary investment of funds raised in offerings of the common shares. If a non-U.S. corporation owns directly or indirectly at least 25% by value of the stock of another corporation, the non-U.S. corporation is treated for purposes of the PFIC tests as owning its proportionate share of the assets of the other corporation and as receiving directly its proportionate share of the other corporation's income. If we are classified as a PFIC in any year with respect to which a U.S. holder owns the common shares, absent the "deemed sale" election described below, we will continue to be treated as a PFIC with respect to such U.S. holder in all succeeding years during which the U.S. holder owns the common shares, regardless of whether we continue to meet the tests described above.

Whether we are a PFIC for any taxable year will depend on the composition of our income and the projected composition and estimated fair market values of our assets (or the adjusted tax basis of our assets if we are a CFC but not a publicly traded corporation as determined under the Code) in each year, and because this is a factual determination made annually after the end of each taxable year, there can be no assurance that we will not be considered a PFIC in any taxable year. Assuming we are not a CFC this purpose, the market value of our assets may be determined in large part by reference to the quarterly market price of our common shares, which is likely to fluctuate after the offering. In addition, the composition of our income and assets will be affected by how, and how quickly, we use the cash proceeds from this offering in our business.

Based on our belief that we were a CFC for the 2015 taxable year (and thus are required to determine our PFIC status for 2015 under the asset test by reference to the adjusted tax basis of our assets), we believe we were a PFIC for the 2015 taxable year and we believe that we may be a PFIC with respect to the 2016 taxable year. However, our status as a PFIC is a fact-intensive determination made on an annual basis and we cannot provide any assurances regarding our PFIC status for any past, current or future taxable years.

If we are a PFIC, and you are a U.S. holder, then unless you make one of the elections described below, a special tax regime will apply to both (a) any "excess distribution" by us to you (generally, your ratable portion of distributions in any year which are greater than 125% of the average annual distribution received by you in the shorter of the three preceding years or your holding period for the common shares) and (b) any gain realized on the sale or other disposition, including a pledge, of the common shares. Under this regime, any excess distribution and realized gain will be treated as ordinary income and will be subject to tax as if (a) the excess distribution or gain had been realized ratably over your holding period, (b) the amount deemed realized in each year had been subject to tax in each year of that holding period at the highest marginal rate for such year (other than income allocated to the current period or any taxable period before we became a PFIC, which would be subject to tax at the U.S. holder's regular ordinary income rate for the current year and would not be subject to the interest charge discussed below), and (c) the interest charge generally applicable to underpayments of tax had been imposed on the taxes deemed to have been payable in those years. In addition, dividend distributions made to you will not qualify for the lower rates of taxation applicable to long-term capital gains discussed above under "Distributions."

If we are a PFIC for any year during which a U.S. holder holds the common shares, we must generally continue to be treated as a PFIC by that U.S. holder for all succeeding years during which the U.S. holder holds the common shares, unless we cease to meet the requirements for PFIC status and the U.S. holder makes a "deemed sale" election with respect to the common shares. If such election is made, the U.S. holder will be deemed to have sold the common shares it holds at their fair market value on the last day of the last taxable year in which we qualified as a PFIC, and any gain from such deemed sale would be subject to the consequences described above. After the deemed sale election, the U.S. holder's common shares with respect to which the deemed sale election was made will not be treated as shares in a PFIC unless we subsequently become a PFIC.

Certain elections exist that may alleviate some of the adverse consequences of PFIC status and would result in an alternative treatment (such as mark-to-market treatment) of the common shares. If a U.S. holder makes the mark-to-market election, the U.S. holder generally will recognize as ordinary income any excess of the fair market value of the common shares at the end of each taxable year over their adjusted tax basis, and will recognize an ordinary loss in respect of any excess of the adjusted tax basis of the common shares over their fair market value at the end of the taxable year (but only to the extent of the net amount of income previously included as a result of the mark-to-market election). If a U.S. holder makes the election, the U.S. holder's tax basis in the common shares will be adjusted to reflect these income or loss amounts. Any gain recognized on the sale or other disposition of common shares in a year when we are a PFIC will be treated as ordinary income and any loss will be treated as an ordinary loss (but only to the extent of the net amount of income previously included as a result of the mark-to-market election). The mark-to-market election is available only if we are a PFIC and the common shares are "regularly traded" on a "qualified exchange." The common shares will be treated as "regularly traded" in any calendar year in which more than a de minimis quantity of the common

shares are traded on a qualified exchange on at least 15 days during each calendar quarter (subject to the rule that trades that have as one of their principal purposes the meeting of the trading requirement as disregarded). NASDAQ is a qualified exchange for this purpose and, consequently, if the common shares are regularly traded, the mark-to-market election will be available to a U.S. holder.

Alternatively, you may avoid the general tax treatment for PFICs described above by electing to treat us (and each lower-tier PFIC, if any) as a "qualified electing fund" under Section 1295 of the Code, or QEF, for each of the taxable years during your holding period that we are a PFIC. If a QEF election is not in effect for the first taxable year in your holding period in which we are a PFIC, a QEF election generally can only be made if you elect to make an applicable deemed sale or deemed dividend election on the first day of your taxable year in which the PFIC becomes a QEF pursuant to the QEF election. The deemed gain or deemed dividend recognized with respect to such an election would be subject to the general tax treatment of PFICs discussed above. We intend to determine our PFIC status at the end of each taxable year and to satisfy any applicable record keeping and reporting requirements that apply to a QEF, and will endeavor to provide to you, for each taxable year that we determine we are a PFIC, a PFIC Annual Information Statement containing the information necessary for you to make a QEF election with respect to us (and any of our subsidiaries which are lower-tier PFICs). We may elect to provide such information on our website. However, there can be no assurances that we will make the necessary information available to you with respect to any lower-tier PFICs (as discussed below).

If you make a QEF election with respect to a PFIC, you will be taxed currently on your pro rata share of the PFIC's ordinary earnings and net capital gain (at ordinary income and capital gain rates, respectively) for each taxable year that the entity is a PFIC, even if no distributions were received. Any distributions we make out of our earnings and profits that were previously included in your income under the QEF election would not be taxable to you. Your tax basis in your common shares would be increased by an amount equal to any income included under the QEF election and decreased by any amount distributed on the common shares that is not included in your income. In addition, you will recognize capital gain or loss on the disposition of your common shares in an amount equal to the difference between the amount realized and your adjusted tax basis in the common shares, each as determined in U.S. dollars. Once made, a QEF election remains in effect unless invalidated or terminated by the IRS or revoked by the shareholder. A QEF election can be revoked only with the consent of the IRS. You will not be currently taxed on the ordinary income and net capital gain of a PFIC with respect to which a QEF election was made for any taxable year of the non-U.S. corporation that such corporation does not satisfy the PFIC Income Test or Asset Test.

You are urged to consult your own tax advisors regarding the availability of, and procedure for making, any deemed gain, deemed dividend or QEF election.

If we are determined to be a PFIC, a U.S. holder will generally be treated as owning a proportionate amount (by value) of shares owned by us in any direct or indirect subsidiaries that are also PFICs, each a lower-tier PFIC, and will be subject to similar adverse rules with respect to any distributions we receive from, or dispositions we make of, the shares of such subsidiaries. The mark-to-market election is not permitted for the shares of any of our subsidiaries that are also classified as PFICs. U.S. holders are urged to consult their tax advisors about the application of the PFIC rules to any of our subsidiaries.

We will endeavor to cause any lower-tier PFIC to provide to a U.S. Holder the information that may be required to make or maintain a QEF election with respect to the lower-tier PFIC. However, there can be no assurance that we will have timely knowledge of the status of any such lower-tier PFIC. In addition, we may not hold a controlling interest in any such lower-tier PFIC and thus there can be no assurance that we will be able to cause the lower-tier PFIC to provide the required information. U.S. Holders are urged to consult their own tax advisors regarding the tax issues raised by lower-tier PFICs, including the availability, and advisability, of making a QEF election with respect to any lower-tier PFICs.

If a U.S. holder owns common shares during any taxable year in which we are a PFIC, the U.S. holder generally will be required to file an IRS Form 8621 (Information Return by a Shareholder of a Passive Foreign

Investment Company or Qualified Electing Fund) with respect to the company, generally with the U.S. holder's federal income tax return for that year. If our company were a PFIC for a given taxable year, then you should consult your tax advisor concerning your annual filing requirements.

The U.S. federal income tax rules relating to PFICs are complex. Prospective U.S. investors are urged to consult their own tax advisers with respect to the acquisition, ownership and disposition of the common shares, the consequences to them of an investment in a PFIC, any elections available with respect to the common shares and the IRS information reporting obligations with respect to the acquisition, ownership and disposition of the common shares.

Backup Withholding and Information Reporting

U.S. holders generally will be subject to information reporting requirements with respect to dividends on the common shares and on the proceeds from the sale, exchange or disposition of common shares that are paid within the United States or through U.S.-related financial intermediaries (and certain subsidiaries thereof), unless the U.S. holder is an "exempt recipient." In addition, U.S. holders may be subject to backup withholding on such payments, unless the U.S. holder provides a taxpayer identification number and a duly executed IRS Form W-9 or otherwise establishes an exemption. Backup withholding is not an additional tax, and the amount of any backup withholding will be allowed as a credit against a U.S. holder's U.S. federal income tax liability and may entitle such holder to a refund, provided that the required information is timely furnished to the IRS.

Foreign Asset Reporting

Certain U.S. holders who are individuals are required to report information relating to an interest in the common shares, subject to certain exceptions (including an exception for shares held in accounts maintained by U.S. financial institutions) by filing IRS Form 8938 (Statement of Specified Foreign Financial Assets) with their federal income tax return. U.S. holders are urged to consult their tax advisors regarding their information reporting obligations, if any, with respect to their ownership and disposition of the common shares.

THE DISCUSSION ABOVE IS A SUMMARY OF MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS TO U.S. HOLDERS. IT DOES NOT COVER ALL TAX MATTERS THAT MAY BE OF IMPORTANCE TO A PARTICULAR PROSPECTIVE INVESTOR. EACH PROSPECTIVE INVESTOR IS URGED TO CONSULT ITS OWN TAX ADVISOR ABOUT THE TAX CONSEQUENCES TO IT OF AN INVESTMENT IN THE SHARES IN LIGHT OF THE INVESTOR'S OWN CIRCUMSTANCES.

UNDERWRITING

Citigroup Global Markets Inc., Piper Jaffray & Co. and Barclays Capital Inc. are acting as joint book-running managers of the offering and as representatives of the underwriters named below. Subject to the terms and conditions stated in the underwriting agreement dated the date of this prospectus, each underwriter named below has severally agreed to purchase, and we have agreed to sell to that underwriter, the number of shares set forth opposite the underwriter's name.

Underwriter	Number of Shares
Citigroup Global Markets Inc.	
Piper Jaffray & Co.	
Barclays Capital Inc.	
Guggenheim Securities, LLC	
Total	4,700,000

The underwriting agreement provides that the obligations of the underwriters to purchase the shares included in this offering are subject to approval of legal matters by counsel and to other conditions. The underwriters are obligated to purchase all the shares (other than those covered by the over-allotment option described below) if they purchase any of the shares.

Shares sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount from the initial public offering price not to exceed $ per share. If all the shares are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. The representatives have advised us that the underwriters do not intend to make sales to discretionary accounts.

If the underwriters sell more shares than the total number set forth in the table above, we have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to 705,000 additional shares at the initial public offering price less the underwriting discounts and commissions. The underwriters may exercise the option solely for the purpose of covering over-allotments, if any, in connection with this offering. To the extent the option is exercised, each underwriter must purchase a number of additional shares approximately proportionate to that underwriter's initial purchase commitment. Any shares issued or sold under the option will be issued and sold on the same terms and conditions as the other shares that are the subject of this offering.

We, our officers and directors and substantially all of our shareholders have agreed that, subject to specified limited exceptions, for a period ending 180 days following the date of this prospectus, we and they will not, without the prior written consent of Citigroup and Piper Jaffray, dispose of or hedge any shares or any securities convertible into or exchangeable for our common shares. Citigroup and Piper Jaffray in their sole discretion may release any of the securities subject to these lock-up agreements at any time, which, in the case of officers and directors, shall be with notice.

The restrictions described in the immediately preceding paragraph do not apply to our directors, executive officers or shareholders with respect to:

- transfers or dispositions (1) as a bona fide gift, (2) to an immediate family member of the undersigned or to a trust formed for the direct or indirect benefit of the undersigned or an immediate family member of the undersigned, (3) by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or trustee of the undersigned or (4) pursuant to a divorce settlement agreement or decree or a qualified domestic relations order; provided that in each case, each recipient agrees to be bound in writing by the same restrictions, such transfers shall not involve a disposition for value and no filing under Section 13 or Section 16(a) of the Exchange Act or other public announcement shall be required or voluntarily made during the restricted period;

- transactions relating to common shares acquired in the offering or in open market transactions after the completion of the offering, provided that with respect to such open market transactions, no filing under Section 13 or Section 16(a) of the Exchange Act or other public announcement shall be required or voluntarily made during the restricted period;
- exercise of options or warrants to purchase common shares or the receipt of common shares upon the vesting of restricted common share awards and any related transfer of common shares to us in connection therewith (x) deemed to occur upon the "cashless" or "net" exercise of such options or warrants or (y) for the purpose of paying the exercise price of such options or warrants or for paying taxes due as a result of the exercise of such options or warrants, the vesting of such options, warrants or common share awards, or as a result of the vesting of such common shares, provided that all common shares received upon such exercise, vesting or transfer remain subject to the restrictions on transfer described herein and provided that no filing under Section 13 or Section 16(a) of the Exchange Act or other public announcement shall be required or voluntarily made during the restricted period;
- transfers of common shares to us pursuant to agreements under which we have the option to repurchase such common shares, provided that no filing under Section 13 or Section 16(a) of the Exchange Act or other public announcement shall be required or voluntarily made during the restricted period;
- transfers of common shares to any affiliate (as defined in Rule 405 of the Securities Act of 1933, as amended), limited partners, general partners, limited liability company members or shareholders of the undersigned, or if the undersigned is a corporation to any wholly owned subsidiary of such corporation, provided that in each case, the recipient agrees to be bound in writing by the same restrictions, such transfers shall not involve a disposition for value and no filing under Section 13 or Section 16(a) of the Exchange Act or other public announcement shall be required or voluntarily made during the restricted period;
- the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of common shares, provided that such plan does not provide for the transfer of common shares during the restricted period and no filing under Section 13 or Section 16(a) of the Exchange Act or other public announcement shall be required or voluntarily made during the restricted period; or
- transfers, sales, tenders or other dispositions of common shares pursuant to a bona-fide third-party tender offer, merger, amalgamation, consolidation or other similar transaction made to or involving all holders of the common shares pursuant to a change of control of the ownership of us, provided that such transaction is approved by our board of directors, and if such transaction is not completed, any common shares subject to restrictions described above remain subject to the restrictions for the restricted period.

In addition, the restrictions described above do not apply to us with respect to:

- the common shares to be sold by us in this offering;
- the issuance and sale by us of common shares pursuant to any employee stock option plan, stock ownership plan or dividend reinvestment plan in effect on the date of this offering; and
- the issuance by us of common shares issuable upon the conversion of securities or the exercise of warrants outstanding on the date of this offering.

This lock-up provision applies to common shares and to securities convertible into, or exercisable or exchangeable for such common shares.

At our request, the underwriters have reserved up to 5% of the common shares for sale at the initial public offering price to persons who are directors, officers or employees, or who are otherwise associated with us through a directed share program. The number of common shares available for sale to the general public will be reduced by the number of directed shares purchased by participants in the program. Except for certain of our officers, directors and employees who have entered into lock-up agreements as contemplated in the immediately preceding paragraph, each person buying shares through the directed share program has agreed that, for a period

of 180 days from the date of this prospectus, he or share will not, without the prior written consent of Citigroup, Piper Jaffray and Barclays, dispose of or hedge any shares or any securities convertible into or exchangeable for our common shares with respect to shares purchased in the program. For certain officers, directors and employees purchasing shares through the directed share program, the lock-up agreements contemplated in the immediately preceding paragraph shall govern with respect to their purchases. Citigroup and Piper Jaffray in their sole discretion may release any of the securities subject to these lock-up agreements at any time, which, in the case of officers and directors, shall be with notice. Any directed shares not purchased will be offered by the underwriters to the general public on the same basis as all other shares offered. We have agreed to indemnify the underwriters against certain liabilities and expenses, including liabilities under the Securities Act, in connection with the sales of the directed shares.

Prior to this offering, there has been no public market for our shares. Consequently, the initial public offering price for the shares will be determined by negotiations between us and the representatives. Among the factors considered in determining the initial public offering price will be our results of operations, our current financial condition, our future prospects, our markets, the economic conditions in and future prospects for the industry in which we compete, our management, and currently prevailing general conditions in the equity securities markets, including current market valuations of publicly traded companies considered comparable to our company. We cannot assure you, however, that the price at which the shares will sell in the public market after this offering will not be lower than the initial public offering price or that an active trading market in our shares will develop and continue after this offering.

We have applied to have our shares listed on the Nasdaq Global Market under the symbol “CRSP.”

The following table shows the underwriting discounts and commissions that we are to pay to the underwriters in connection with this offering. These amounts are shown assuming both no exercise and full exercise of the underwriters’ over-allotment option.

		Total	
	Per Share	No Exercise	Full Exercise
Public offering price	$	$	$
Underwriting discounts and commissions to be paid by us	$	$	$
Proceeds to us, before expenses	$	$	$

We estimate that our portion of the total expenses of this offering, exclusive of underwriting discounts and commissions, will be approximately $3.75 million. We have agreed to reimburse the underwriters for expenses, in an amount up to $25,000, relating to the clearance of this offering with the Financial Industry Regulatory Authority, Inc and the qualification of our common shares under state securities laws.

In connection with the offering, the underwriters may purchase and sell shares in the open market. Purchases and sales in the open market may include short sales, purchases to cover short positions, which may include purchases pursuant to the underwriters’ over-allotment option, and stabilizing purchases.

- Short sales involve secondary market sales by the underwriters of a greater number of shares than they are required to purchase in the offering.
  - “Covered” short sales are sales of shares in an amount up to the number of shares represented by the underwriters’ over-allotment option.
  - “Naked” short sales are sales of shares in an amount in excess of the number of shares represented by the underwriters’ over-allotment option.
- Covering transactions involve purchases of shares either pursuant to the underwriters’ over-allotment option or in the open market in order to cover short positions.
  - To close a naked short position, the underwriters must purchase shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward

pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.

- To close a covered short position, the underwriters must purchase shares in the open market or must exercise their over-allotment option. In determining the source of shares to close the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through their over-allotment option.

- Stabilizing transactions involve bids to purchase shares so long as the stabilizing bids do not exceed a specified maximum.

Purchases to cover short positions and stabilizing purchases, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of the shares. They may also cause the price of the shares to be higher than the price that would otherwise exist in the open market in the absence of these transactions. The underwriters may conduct these transactions on the Nasdaq Global Market, in the over-the-counter market or otherwise. If the underwriters commence any of these transactions, they may discontinue them at any time.

Conflicts of Interest

The underwriters are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. The underwriters and their respective affiliates may, from time to time, engage in transactions with and perform services for us in the ordinary course of their business for which they may receive customary fees and reimbursement of expenses. In the ordinary course of their various business activities, the underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (which may include bank loans and/or credit default swaps) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make because of any of those liabilities.

Notice to Prospective Investors in the European Economic Area

In relation to each member state of the European Economic Area that has implemented the Prospectus Directive (each, a relevant member state), with effect from and including the date on which the Prospectus Directive is implemented in that relevant member state (the relevant implementation date), an offer of shares described in this prospectus may not be made to the public in that relevant member state other than:

- to any legal entity which is a qualified investor as defined in the Prospectus Directive;

- to fewer than 100 or, if the relevant member state has implemented the relevant provision of the 2010 PD Amending Directive, 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the relevant Dealer or Dealers nominated by us for any such offer; or

- in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of shares shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For purposes of this provision, the expression an "offer of securities to the public" in any relevant member state means the communication in any form and by any means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase or subscribe for the shares, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that member state, and the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the relevant member state) and includes any relevant implementing measure in the relevant member state. The expression "2010 PD Amending Directive" means Directive 2010/73/EU.

The sellers of the shares have not authorized and do not authorize the making of any offer of shares through any financial intermediary on their behalf, other than offers made by the underwriters with a view to the final placement of the shares as contemplated in this prospectus. Accordingly, no purchaser of the shares, other than the underwriters, is authorized to make any further offer of the shares on behalf of the sellers or the underwriters.

Notice to Prospective Investors in the United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order") or (ii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (each such person being referred to as a "relevant person"). This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

Notice to Prospective Investors in Australia

No prospectus or other disclosure document (as defined in the Corporations Act 2001 (Cth) of Australia, or Corporations Act) in relation to the shares has been or will be lodged with the Australian Securities & Investments Commission, or ASIC. This document has not been lodged with ASIC and is only directed to certain categories of exempt persons. Accordingly, if you receive this document in Australia:

- you confirm and warrant that you are either:
  - a "sophisticated investor" under section 708(8)(a) or (b) of the Corporations Act;
  - a "sophisticated investor" under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant's certificate to us which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made;
  - a person associated with the company under section 708(12) of the Corporations Act; or
  - a "professional investor" within the meaning of section 708(11)(a) or (b) of the Corporations Act, and to the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor, associated person or professional investor under the Corporations Act any offer made to you under this document is void and incapable of acceptance; and
- you warrant and agree that you will not offer any of the shares for resale in Australia within 12 months of those shares being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

Notice to Prospective Investors in France

Neither this prospectus nor any other offering material relating to the shares described in this prospectus has been submitted to the clearance procedures of the *Autorité des Marchés Financiers* or of the competent authority of another member state of the European Economic Area and notified to the *Autorité des Marchés Financiers*. The shares have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France. Neither this prospectus nor any other offering material relating to the shares has been or will be:

- released, issued, distributed or caused to be released, issued or distributed to the public in France; or
- used in connection with any offer for subscription or sale of the shares to the public in France.

Such offers, sales and distributions will be made in France only:

- to qualified investors (*investisseurs qualifiés*) and/or to a restricted circle of investors (*cercle restreint d'investisseurs*), in each case investing for their own account, all as defined in, and in accordance with articles L.411-2, D.411-1, D.411-2, D.734-1, D.744-1, D.754-1 and D.764-1 of the French *Code monétaire et financier*;
- to investment services providers authorized to engage in portfolio management on behalf of third parties; or
- in a transaction that, in accordance with article L.411-2-II-1°-or-2°-or 3° of the French *Code monétaire et financier* and article 211-2 of the General Regulations (*Règlement Général*) of the *Autorité des Marchés Financiers*, does not constitute a public offer (*appel public à l'épargne*).

The shares may be resold directly or indirectly, only in compliance with articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French *Code monétaire et financier*.

Notice to Prospective Investors in Hong Kong

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), or (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong) and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Notice to Prospective Investors in Japan

The shares offered in this prospectus have not been and will not be registered under the Financial Instruments and Exchange Law of Japan. The shares have not been offered or sold and will not be offered or sold, directly or indirectly, in Japan or to or for the account of any resident of Japan (including any corporation or other entity organized under the laws of Japan), except (i) pursuant to an exemption from the registration requirements of the Financial Instruments and Exchange Law and (ii) in compliance with any other applicable requirements of Japanese law.

Notice to Prospective Investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with conditions set forth in the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

- to an institutional investor (for corporations, under Section 274 of the SFA) or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of shares and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than $200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions specified in Section 275 of the SFA;
- where no consideration is or will be given for the transfer; or
- where the transfer is by operation of law.

Notice to Prospective Investors in Switzerland

The common shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or the SIX, or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the common shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland. Neither this document nor any other offering or marketing material relating to this offering, the company or the common shares has been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA (FINMA), and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Notice to Prospective Investors in Canada

The securities may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the securities must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 *Underwriting Conflicts* (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

CONCURRENT PRIVATE PLACEMENT

Pursuant to a Subscription Agreement dated December 19, 2015, or the Subscription Agreement, Bayer Global Investments B.V., or Bayer BV, has agreed to purchase from us concurrently with this offering in a private placement $35 million of our common shares at a price per share equal to the initial public offering price, or 2,187,500 shares, assuming an initial public offering price of $16.00 per common share, which is the midpoint of the price range set forth on the cover page of this prospectus, subject to the terms and conditions set forth in the Subscription Agreement. We may reduce the amount of Bayer BV's purchase in our sole discretion, subject to the terms of the Subscription Agreement. The sale of these shares will not be registered under the Securities Act and the concurrent private placement is subject to certain closing conditions. The shares issued to Bayer BV in the concurrent private placement will be subject to the registration rights contained in the Registration Rights Agreement described in the section entitled "Common Shares Eligible for Future Sale—Shareholder Registration Rights."

The Subscription Agreement provides that, until the later to occur of (i) 18 month anniversary of the closing of this offering or (ii) the termination of the JV Agreement, and subject to certain exceptions, Bayer BV is prohibited from taking certain actions with respect to our capital stock and business operations, including but not limited to:

(a) acquiring, directly or indirectly, any of our equity securities if the acquisition would increase Bayer BV's beneficial ownership percentage in CRISPR by more than 5%, compared to its ownership interest immediately following the closing of this offering;

(b) proposing (i) any merger, consolidation, business combination, tender or exchange offer, sale of all or substantially all of our assets or businesses, or similar transactions involving CRISPR or (ii) any recapitalization, restructuring, liquidation or other extraordinary transaction with respect to CRISPR; or

(c) (i) proposing or seeking, whether alone or in concert with others, any solicitation of proxies or consents to vote any securities of the Company, (ii) nominating any person as a director of our board of directors, (iii) proposing any matter to be voted upon by our shareholders or (iv) acting, alone or in concert with others, to seek to control our management, board of directors, policies or affairs.

Bayer BV has entered into a 180-day lock-up agreement in favor of the underwriters in this offering, including with respect to the shares it purchases in the concurrent private placement. See "Underwriting" for a summary of the terms of the lock-up agreement entered into by Bayer BV, and our directors, officers and substantially all of our shareholders.

LEGAL MATTERS

The validity of the common shares and certain other matters of Swiss law will be passed upon for us by Vischer AG, Zurich, Switzerland. Certain matters of U.S. federal and Delaware state law will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts, and for the underwriters by Ropes & Gray LLP, Boston, Massachusetts.

EXPERTS

The consolidated financial statements of CRISPR Therapeutics AG at December 31, 2015 and 2014 and for the years then ended appearing in the Prospectus and Registration Statement, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

ENFORCEMENT OF JUDGMENTS

We are organized under the laws of Switzerland and our registered office and domicile is located in Basel, Switzerland. Moreover, certain of our directors and executive officers are not residents of the United States, and all or a substantial portion of the assets of such persons are located outside the United States. As a result, it may not be possible for investors to effect service of process within the United States upon us or upon such persons or to enforce against them judgments obtained in U.S. courts, including judgments in actions predicated upon the civil liability provisions of the federal securities laws of the United States. We have been advised by our Swiss counsel that there is doubt as to the enforceability in Switzerland of original actions, or in actions for enforcement of judgments of U.S. courts, of civil liabilities to the extent solely predicated upon the federal and state securities laws of the United States. Original actions against persons in Switzerland based solely upon the U.S. federal or state securities laws are governed, among other things, by the principles set forth in the Swiss Federal Act on Private International Law. This statute provides that the application of provisions of non-Swiss law by the courts in Switzerland shall be precluded if the result would be incompatible with Swiss public policy. Also, mandatory provisions of Swiss law may be applicable regardless of any other law that would otherwise apply.

Switzerland and the United States do not have a treaty providing for reciprocal recognition of and enforcement of judgments in civil and commercial matters. The recognition and enforcement of a judgment of the courts of the United States in Switzerland is governed by the principles set forth in the Swiss Federal Act on Private International Law. This statute provides in principle that a judgment rendered by a non-Swiss court may be enforced in Switzerland only if:

- the non-Swiss court had jurisdiction pursuant to the Swiss Federal Act on Private International Law;
- the judgment of such non-Swiss court has become final and non-appealable;
- the judgment does not contravene Swiss public policy;
- the court procedures and the service of documents leading to the judgment were in accordance with the due process of law; and
- no proceeding involving the same position and the same subject matter was first brought in Switzerland, or adjudicated in Switzerland, or was earlier adjudicated in a third state and this decision is recognizable in Switzerland.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the U.S. Securities and Exchange Commission, the SEC, a registration statement (including amendments and exhibits to the registration statement) on Form S-1 under the Securities Act. This prospectus, which is part of the registration statement, does not contain all of the information set forth in the registration statement and the exhibits and schedules to the registration statement. For further information, we refer you to the registration statement and the exhibits and schedules filed as part of the registration statement. If a document has been filed as an exhibit to the registration statement, we refer you to the copy of the document that has been filed. Each statement in this prospectus relating to a document filed as an exhibit is qualified in all respects by the filed exhibit.

You may review a copy of the registration statement, including exhibits and any schedule filed therewith, and obtain copies of such materials at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Information on the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an Internet website that contains reports and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

Upon completion of this offering, we will become subject to the informational requirements of the Exchange Act. Accordingly, we will be required to file reports and other information with the SEC, including annual reports on Form 10-K and reports on Form 10-Q. Those reports may be inspected without charge at the locations described above.

CRISPR Therapeutics AG

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders
CRISPR Therapeutics AG

We have audited the accompanying consolidated balance sheets of CRISPR Therapeutics AG (the "Company") as of December 31, 2015 and 2014, and the related consolidated statements of operations and comprehensive loss, redeemable convertible preferred shares and shareholders' (deficit) equity, and cash flows for the years then ended. These financial statements are the responsibility of the Company's Board of Directors and management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of CRISPR Therapeutics AG at December 31, 2015 and 2014, and the consolidated results of its operations and its cash flows for the years then ended, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

Boston, Massachusetts
May 13, 2016, except for
Note 17, as to which the
date is July 26, 2016

CRISPR Therapeutics AG
Consolidated Balance Sheets
(In thousands, except share and per share data)

	December 31,		June 30, 2016	
	2014	2015	Actual (unaudited)	Pro Forma (unaudited)
Assets				
Current assets:				
Cash	$ 945	$ 155,961	$ 246,849	$ 246,849
Accounts receivable	—	339	1,354	1,354
Prepaid expenses and other current assets	23	540	956	956
Total current assets	968	156,840	249,159	249,159
Property and equipment, net	—	1,328	2,377	2,377
Equity method investment	—	—	35,686	35,686
Intangible assets, net	509	454	426	426
Restricted cash	50	700	3,153	3,153
Other non-current assets	—	101	2,258	2,258
Total assets	$ 1,527	$ 159,423	$ 293,059	$ 293,059
Liabilities, redeemable convertible preferred shares and shareholders' (deficit) equity				
Current liabilities:				
Accounts payable	$ 211	$ 1,584	$ 3,687	$ 3,687
Accrued expenses	1,924	8,430	13,184	13,184
Accrued tax liabilities	11	81	58	58
Deferred gain	—	—	63,608	63,608
Other current liabilities	—	60	62	62
Total current liabilities	2,146	10,155	80,599	80,599
Convertible loan, including accrued interest of $0, $97, $0 and $0 as of December 31, 2014 and 2015, and June 30, 2016 (unaudited) and pro forma, respectively	—	38,336	—	—
Deferred revenue	—	75,090	76,439	76,439
Other non-current liabilities	85	445	680	680
Total liabilities	2,231	124,026	157,718	157,718
Commitments and contingencies (Note 8)				
Redeemable convertible preferred shares:				
Series A-1 redeemable convertible preferred shares, CHF 0.03 par value, 440,001 shares authorized, issued, and outstanding in share capital at December 31, 2014 and 2015, and June 30, 2016 (unaudited) no shares issued and outstanding in share capital pro forma (unaudited); aggregate liquidation preference of CHF 502 and CHF 502 at December 31, 2015 and June 30, 2016, and none pro forma (unaudited)	1,169	1,169	1,169	—
Series A-2 redeemable convertible preferred shares, CHF 0.03 par value, 3,120,001 shares authorized, issued, and outstanding in share capital at December 31, 2014 and 2015, and June 30, 2016 (unaudited) no shares issued and outstanding in share capital pro forma (unaudited); aggregate liquidation preference of CHF 9,512 and CHF 9,512 at December 31, 2015 and June 30, 2016 (unaudited), and none pro forma (unaudited)	5,101	10,394	10,394	—
Series A-3 redeemable convertible preferred shares, CHF 0.03 par value, 0, 10,758,006 and 10,758,006 shares authorized, issued, and outstanding in share capital at December 31, 2014 and 2015, and June 30, 2016 (unaudited) respectively, no shares issued and outstanding in share capital pro forma (unaudited); aggregate liquidation preference of $22,850 and $45,700 at December 31, 2015 and June 30, 2016 (unaudited), and none pro forma (unaudited)	—	22,518	45,368	—
Series B redeemable convertible preferred shares, CHF 0.03 par value, 0, 4,519,016 and 12,817,876 shares authorized, issued, and outstanding in share capital at December 31, 2014 and 2015, and June 30, 2016 (unaudited) respectively, no shares issued and outstanding in share capital pro forma (unaudited); aggregate liquidation preference of CHF 28,000 at December 31, 2015 and CHF 28,000 and $111,487 at June 30, 2016 (unaudited), and none pro forma (unaudited)	—	30,440	128,634	—
Shareholders' (deficit) equity:				
Common shares, CHF 0.03 par value, 3,559,985, and 5,528,079 shares authorized, issued and outstanding in share capital at December 31, 2014 and 2015, respectively 5,387,986 shares authorized and issued, and 5,262,686 shares outstanding in share capital at June 30, 2016; 32,851,887 shares authorized and issued, and 32,726,587 shares outstanding in share capital pro forma (unaudited); 0, 2,444,364, 4,123,651 and 3,795,634 shares in conditional capital at December 31, 2014, 2015 and June 30, 2016 (unaudited), and pro forma (unaudited), respectively	120	181	173	997
Treasury shares, at cost, no shares at December 31, 2014 and 2015, and 274,140 at June 30, 2016 (unaudited), and pro forma (unaudited), respectively	—	—	—	—
Additional paid-in capital	1,168	4,636	9,167	194,085
Accumulated deficit	(8,403)	(33,906)	(59,502)	(59,716)
Accumulated other comprehensive loss	(2)	(8)	(25)	(25)
Total CRISPR Therapeutics AG shareholders' (deficit) equity	(7,117)	(29,097)	(50,187)	135,341
Noncontrolling interest	143	(27)	(37)	—
Total shareholders' (deficit) equity	(6,974)	(29,124)	(50,224)	135,341
Total liabilities, redeemable convertible preferred shares and shareholders' (deficit) equity	$ 1,527	$ 159,423	$ 293,059	$ 293,059

See accompanying notes to these consolidated financial statements.

CRISPR Therapeutics AG
Consolidated Statement of Operations and Comprehensive Loss
(In thousands, except share and per share data)

	Year Ended December 31,		Six Months Ended June 30,	
	2014	2015	2015 (Unaudited)	2016 (Unaudited)
Collaboration revenue	$ —	$ 247	$ —	$ 1,271
Operating expenses:				
Research and development	1,513	12,573	2,650	14,614
General and administrative	5,114	13,403	4,711	14,867
Total operating expenses	6,627	25,976	7,361	29,481
Loss from operations	(6,627)	(25,729)	(7,361)	(28,210)
Other (expense) income:				
Interest expense	—	(108)	(1)	(8,050)
Loss from equity method investment	—	—	—	(686)
Gain on extinguishment of convertible loan	—	—	—	11,482
Other (expense) income, net	(236)	16	(42)	(66)
Total other (expense) income, net	(236)	(92)	(43)	2,680
Net loss before benefit from (provision for) income taxes	(6,863)	(25,821)	(7,404)	(25,530)
Benefit from (provision for) income taxes	63	(7)	216	(76)
Net loss	(6,800)	(25,828)	(7,188)	(25,606)
Foreign currency translation adjustment	(2)	(6)	2	(17)
Comprehensive loss	$ (6,802)	$ (25,834)	$ (7,186)	$ (25,623)
Reconciliation of net loss to net loss attributable to common shareholders:				
Net loss	$ (6,800)	$ (25,828)	$ (7,188)	$ (25,606)
Loss attributable to noncontrolling interest	536	325	308	10
Loss on extinguishment of redeemable convertible preferred shares	(745)	—	—	—
Net loss attributable to common shareholders	$ (7,009)	$ (25,503)	$ (6,880)	$ (25,596)
Net loss per share attributable to common shareholders—basic and diluted	$ (1.97)	$ (5.06)	$ (1.52)	$ (4.66)
Weighted-average common shares outstanding used in net loss per share attributable to common shareholders—basic and diluted	3,559,985	5,037,404	4,538,595	5,488,467
Pro forma net loss per share attributable to common shareholders—basic and diluted (unaudited)		$ (1.26)		$ (0.87)
Pro forma weighted-average common shares used in net loss per share attributable to common shareholders—basic and diluted (unaudited)		20,241,365		29,297,808

See accompanying notes to these consolidated financial statements.

CRISPR Therapeutics AG
Consolidated Statements of Redeemable Convertible Preferred Shares and Shareholders' (Deficit) Equity
(In thousands, except share and per share data)

	Series A-1 Redeemable Convertible Preferred Shares		Series A-2 Redeemable Convertible Preferred Shares		Series A-3 Redeemable Convertible Preferred Shares		Series B Redeemable Convertible Preferred Shares		Common Shares		Treasury Shares		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total CRISPR Therapeutics AG Shareholders' (Deficit) Equity	Noncontrolling Interest	Total Shareholders' (Deficit) Equity
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	CHF 0.03 Par Value	Shares	Amount, at cost						
Balance at December 31, 2013	440,001	$ 424	—	$ —	—	$ —	—	$ —	3,559,985	$ 98	—	—	$ 1,460	$ (2,139)	$ —	$ (581)	$ —	$ (581)
Receipt of common shares subscription receivable	—	—	—	—	—	—	—	—	—	22	—	—	—	—	—	22	—	22
Issuance of Series A-2 preferred shares, net of issuance costs of $36 and subscription receivable of $5,293	—	—	3,120,001	5,101	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Loss on extinguishment of Series A-1 preferred shares	—	745	—		—	—	—	—	—	—	—	—	(745)	—	—	(745)	—	(745)
Other comprehensive income (loss)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(2)	(2)	—	(2)
Equity-based compensation expense	—	—	—	—	—	—	—	—	—	—	—	—	453	—	—	453	242	695
Noncontrolling interest upon consolidation of TRACR Hematology Limited	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	437	437
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	(6,264)	—	(6,264)	(536)	(6,800)
Balance at December 31, 2014	440,001	$ 1,169	3,120,001	$ 5,101	—	$ —	—	$ —	3,559,985	$ 120	—	—	$ 1,168	$ (8,403)	$ (2)	$ (7,117)	$ 143	$ (6,974)
Receipt of Series A-2 preferred shares subscription receivable	—	—	—	5,293	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Issuance of Series A-3 preferred shares, net of issuance costs of $332 and subscription receivable of $22,850	—	—	—	—	10,758,006	22,518	—	—	—	—	—	—	—	—	—	—	—	—
Adjustment to noncontrolling interest upon share exchange transaction for TRACR Hematology Limited	—	—	—	—	—	—	—	—	1,968,094	61	—	—	1	—	—	62	(62)	—
Issuance of Series B preferred shares, net of issuance costs of $38	—	—	—	—	—	—	4,519,016	30,440	—	—	—	—	—	—	—	—	—	—
Equity-based compensation expense	—	—	—	—	—	—	—	—	—	—	—	—	3,467	—	—	3,467	217	3,684
Other comprehensive income (loss)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(6)	(6)	—	(6)
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	(25,503)	—	(25,503)	(325)	(25,828)
Balance at December 31, 2015	440,001	$ 1,169	3,120,001	$ 10,394	10,758,006	$ 22,518	4,519,016	$ 30,440	5,528,079	$ 181	—	—	$ 4,636	$ (33,906)	$ (8)	$ (29,097)	$ (27)	$ (29,124)
Conversion of convertible loans into Series B preferred shares at $13.43 per share (unaudited)	—	—	—	—	—	—	5,464,608	61,929	—	—	—	—	—	—	—	—	—	—
Receipt of Series A-3 Subscription Receivable	—	—	—	—	—	22,850	—	—	—	—	—	—	—	—	—	—	—	—
Issuance of Series B Preferred Shares, net of issuance costs of $1.8 million	—	—	—	—	—	—	2,834,252	36,265	—	—	—	—	—	—	—	—	—	—
Repurchase of treasury shares	—	—	—	—	—	—	—	—	(274,140)	(8)	274,140	—	8	—	—	—	—	—
Vesting of restricted shares	—	—	—	—	—	—	—	—	8,747	—	—	—	—	—	—	—	—	—
Equity-based compensation expense (unaudited)	—	—	—	—	—	—	—	—	—	—	—	—	4,523	—	—	4,523	—	4,523
Other comprehensive income (loss) (unaudited)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(17)	(17)	—	(17)
Net loss (unaudited)	—	—	—	—	—	—	—	—	—	—	—	—	—	(25,596)	—	(25,596)	(10)	(25,606)
Balance at June 30, 2016 (unaudited)	440,001	$ 1,169	3,120,001	$ 10,394	10,758,006	$ 45,368	12,817,876	$ 128,634	5,262,686	$ 173	274,140	$ —	$ 9,167	$ (59,502)	$ (25)	$ (50,187)	$ (37)	$ (50,224)
Exercise of call option for noncontrolling interest (unaudited)	—	—	—	—	—	—	—	—	328,017	10	—	—	167	(214)	—	(37)	37	—
Conversion of redeemable convertible preferred shares into common shares (unaudited)	(440,001)	(1,169)	(3,120,001)	(10,394)	(10,758,006)	(45,368)	(12,817,876)	(128,634)	27,135,884	814	—	—	184,751	—	—	185,565	—	185,565
Pro forma Balance at June 30, 2016 (unaudited)	—	$ —	—	$ —	—	$ —	—	$ —	32,726,587	$ 997	274,140	$ —	$ 194,085	$ (59,716)	$ (25)	$ 135,341	$ —	$ 135,341

See accompanying notes to these consolidated financial statements.

CRISPR Therapeutics AG
Consolidated Statements of Cash Flows
(In thousands)

	Year Ended December 31,		Six Months Ended June 30,	
	2014	2015	2015 (Unaudited)	2016 (Unaudited)
Operating activities				
Net loss	$ (6,800)	$ (25,828)	$ (7,188)	$ (25,606)
Reconciliation of net loss to net cash used in operating activities:				
Depreciation and amortization expense	38	127	28	277
Equity-based compensation expense	695	3,684	1,479	4,523
Non-cash interest expense	—	97	—	8,050
Loss from disposal of property and equipment	—	—	—	28
Unrealized foreign currency remeasurement loss	(260)	(20)	125	14
Gain on extinguishment of convertible loan	—	—	—	(11,482)
Loss from equity method investment			—	686
Changes in:				
Restricted cash	(16)	(650)	(554)	(2,453)
Accounts receivable	—	(339)	—	(1,015)
Prepaid expenses and other assets	(12)	(620)	(466)	(2,573)
Accounts payable and accrued expenses	1,583	7,708	2,279	4,988
Deferred revenue	—	75,090	—	710
Deferred rent	—	165	—	184
Other liabilities, net	(21)	14	34	51
Net cash (used in) provided by operating activities	(4,793)	59,428	(4,263)	(23,618)
Investing activities				
Purchase of property and equipment	—	(1,154)	(102)	(1,279)
Proceeds from contribution of intellectual property to equity method investee	—	—	—	20,000
Cash investment in equity method investee	—	—	—	(100)
Net cash (used in) provided by investing activities	—	(1,154)	(102)	18,621
Financing activities				
Proceeds from issuance of common shares	22	—	—	—
Proceeds from issuance of restricted shares	—	243	—	—
Proceeds from issuance of Series A-2 preferred shares	5,137	5,293	5,293	—
Proceeds from issuance of Series A-3 preferred shares	—	22,850	22,518	22,850
Proceeds from issuance of Series B preferred shares	—	30,478	30,440	38,075
Issuance costs for preferred share financings	(36)	(370)	—	—
Proceeds from issuance of convertible loans	—	38,239	—	35,000
Net cash provided by financing activities	5,123	96,733	58,251	95,925
Effect of exchange rate changes on cash	254	9	(160)	(40)
Increase in cash	584	155,016	53,726	90,888
Cash, beginning of period	361	945	945	155,961
Cash, end of period	$ 945	$ 155,961	$ 54,671	$ 246,849
Supplemental disclosure of non-cash investing and financing activities				
Property and equipment purchases in accounts payable and accrued expenses	$ —	$ 246	$ 405	$ 47
Loss on extinguishment of Series A-1 preferred shares	$ 745	$ —	$ —	$ —
Noncontrolling interest upon consolidation of TRACR	$ 547	$ —	$ —	$ —
Conversion of Vertex and Bayer convertible loans and accrued interest	$ —	$ —	$ —	$ 61,929
Noncash contribution of intellectual property to Casebia LLP	$ —	$ —	$ —	$ 36,372
Issuance costs for preferred share financing in accounts payable and accrued expenses	$	$	$	$ 1,810

See accompanying notes to these consolidated financial statements.

CRISPR Therapeutics AG
Notes to Consolidated Financial Statements

(Information as of June 30, 2016 and for the six months ended June 30, 2015 and 2016 is unaudited)

1. Organization and Operations

The Company

CRISPR Therapeutics AG ("CRISPR" or the "Company") was formed on October 28, 2013 in Basel, Switzerland. The Company was established to translate CRISPR/Cas9, a genome editing technology, into transformative gene-based medicines for the treatment of serious human diseases. The foundational intellectual property underlying the Company's operations was licensed to the Company and its subsidiaries in April 2014. The Company devotes substantially all of its efforts to product research and development activities, initial market development and raising capital. The Company's principal offices and operations are in Cambridge, Massachusetts.

On January 23, 2014, the founders of the Company formed TRACR Hematology Limited ("TRACR") in the United Kingdom, to further the development of the CRISPR/Cas9 technology into medicines for the treatment of blood-borne illnesses. As the Company was funding and managing TRACR's operations in 2014, it has been consolidated by the Company from the date that the Company established a variable interest in TRACR in April 2014. In March 2015, the Company acquired 82.1% of the outstanding equity of TRACR in a share exchange transaction.

On February 7, 2014, the Company formed a wholly-owned subsidiary in the United Kingdom, CRISPR Therapeutics Limited ("CRISPR Ltd."), and on February 16, 2015, the Company formed a wholly-owned subsidiary in the United States, CRISPR Therapeutics, Inc. ("CRISPR Inc."), as its principal research and development operation.

The Company is subject to risks common to companies in the biotechnology industry, including but not limited to, risks of failure of preclinical studies and clinical trials, the need to obtain marketing approval for any drug product candidate that it may identify and develop, the need to successfully commercialize and gain market acceptance of its product candidates, dependence on key personnel, protection of proprietary technology, compliance with government regulations, development by competitors of technological innovations and ability to transition from pilot-scale manufacturing to large-scale production of products.

The Company had an accumulated deficit of $59.5 million as of June 30, 2016 and has financed its operations to date from proceeds obtained from a series of preferred shares and convertible loan issuances and upfront fees received under its collaboration and joint venture arrangements. The Company will require substantial additional capital to fund its research and development and ongoing operating expenses.

Liquidity

The Company believes its cash of $246.8 million at June 30, 2016 will be sufficient to fund the Company's current operating plan for at least the next 12 months. Thereafter, the Company will be required to obtain additional funding. The Company intends to pursue a public offering of its common shares ("Common Shares") to fund future operations. If the Company is unable to complete a sufficient public offering in a timely manner, it would need to pursue other financing alternatives, such as private financing of debt or equity or collaboration agreements. There can be no assurances, however, that the current operating plan will be achieved or that additional funding will be available on terms acceptable to the Company, or at all.

2. Summary of Significant Accounting Policies

Basis of Presentation and Use of Estimates

The accompanying consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"), and include the accounts of (i) the Company, (ii) its wholly-owned subsidiaries, CRISPR Ltd. and CRISPR Inc., and (iii) TRACR, a consolidated variable interest entity ("VIE") as of December 31, 2014 and an 82.1% owned subsidiary as of December 31, 2015 and June 30, 2016. All intercompany accounts and transactions have been eliminated. Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASUs") of the Financial Accounting Standards Board ("FASB").

The Company accounts for its 50% investment share of Casebia Therapeutics LLP under the equity method of accounting. See Note 9 for further details.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. On an ongoing basis, the Company's management evaluates its estimates, which include, but are not limited to, equity- based compensation expense, revenue recognition, equity method investments, and reported amounts of expenses during the reported period. Significant estimates in these consolidated financial statements have been made in connection with the calculation of revenues, research and development expenses, equity-based compensation expense, fair value of Common Shares, fair value of intangible assets, and the provision for or benefit from income taxes. The Company bases its estimates on historical experience and other market-specific or other relevant assumptions that it believes to be reasonable under the circumstances. Actual results may differ from those estimates or assumptions.

The Company utilizes significant estimates and assumptions in determining the fair value of its Common Shares. The Company utilized various valuation methodologies in accordance with the framework of the 2004 and 2013 American Institute of Certified Public Accountants Technical Practice Aids, *Valuation of Privately- Held Company Equity Securities Issued as Compensation*, to estimate the fair value of its Common Shares. Each valuation methodology includes estimates and assumptions that require the Company's judgment. These estimates and assumptions include a number of objective and subjective factors, including external market conditions affecting the biotechnology industry sector, the prices at which the Company sold preferred shares, the superior rights and preferences of securities senior to the Company's Common Shares at the time, the likelihood of achieving a liquidity event, such as an initial public offering or a sale of the Company, and the Company's discounted cash flows from forecasted operations. Significant changes to the key assumptions used in the valuations could result in different fair values of Common Shares at each valuation date and materially affect the financial statements.

Reclassifications

Certain reclassifications in regards to the change in cash flows from operations due to increases in accounts receivable have been made to the prior year consolidated financial statements to conform to the current year presentation.

Unaudited Interim Financial Information

The accompanying interim consolidated balance sheet as of June 30, 2016, the consolidated statements of operations and comprehensive loss and consolidated statements of cash flows for the six months ended June 30, 2015 and 2016, the consolidated statements of redeemable convertible preferred shares and shareholders' (deficit) equity for the six months ended June 30, 2016 and the related footnote disclosures are unaudited. These unaudited interim consolidated financial statements have been prepared in accordance with GAAP. In management's opinion, the unaudited interim consolidated financial statements have been prepared on the same basis as the audited financial statements and include all adjustments (including normal recurring adjustments) necessary for the fair presentation of the Company's financial position as of June 30, 2016 and its results of

operations and comprehensive loss and its cash flows for the six months ended June 30, 2015 and 2016. The results for the six months ended June 30, 2016 are not necessarily indicative of the results expected for the full fiscal year or any other interim period.

Unaudited Pro Forma Information

On May 13, 2016, the Company's Board of Directors authorized the Company to file a registration statement with the Securities and Exchange Commission ("SEC") permitting the Company to sell Common Shares to the public. Upon the closing of a qualified (as defined in the Company's Articles of Incorporation) initial public offering ("IPO"), all of the Company's outstanding redeemable convertible preferred shares will automatically convert into Common Shares. In addition, upon the closing of the IPO, the remaining 17.9% of the ordinary share capital of TRACR, representing the noncontrolling interest, will automatically convert into 328,017 Common Shares. The accompanying unaudited pro forma balance sheet and statement of redeemable convertible preferred shares and shareholders' (deficit) equity as of June 30, 2016 reflect the assumed conversion of all the outstanding Series A-1 Redeemable Convertible Preferred Shares ("Series A-1 Preferred Shares"), the Series A-2 Redeemable Convertible Preferred Shares ("Series A-2 Preferred Shares"), the Series A-3 Redeemable Convertible Preferred Shares ("Series A-3 Preferred Shares"), the Series B Preferred Shares ("Series B Preferred Shares") (collectively "Preferred Shares") and the remaining noncontrolling interest into Common Shares. See Note 10 for further discussion of the Preferred Shares conversion features, as well as the rights and preferences of the Preferred Shares.

Unaudited pro forma net loss per share attributable to common shareholders is computed using the weighted-average number of Common Shares outstanding after giving effect to the conversion of all Preferred Shares into Common Shares as if such conversion had occurred at the beginning of the period presented, or the date of original issuance, if later. As the years ended December 31, 2014 and December 31, 2015 and the six months ended June 30, 2015 and 2016, resulted in net losses, there is no income allocation required under the two-class method or dilution attributed to pro forma weighted-average shares outstanding in the calculation of pro forma diluted loss per share attributable to common shareholders.

Segment Information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company and the Company's chief operating decision maker, namely, the chief executive officer, view the Company's operations and manage its business in one operating segment, which is the business of discovering, developing and commercializing therapies derived from or incorporating genome-editing technology.

Foreign Currency Translation and Transactions

The Company's reporting currency is the U.S. Dollar. The Company's consolidated entities have the U.S. dollar as their functional currency with the exception of CRISPR Ltd. which has the British Pound Sterling ("GBP") as its functional currency. CRISPR Ltd. has assets and liabilities translated into U.S. dollars at exchange rates in effect at the end of the year. Revenue and expenses are translated using the average exchange rates for the period. Net unrealized gains and losses resulting from foreign currency translation are included in accumulated other comprehensive income (loss), which is a separate component of shareholders' (deficit) equity. Net foreign currency exchange transaction gains and losses resulting from the remeasurement of transactions denominated in currencies other than functional currency are included in other (expense) income, net in the consolidated statements of operations and comprehensive loss.

Cash and Cash Equivalents

The Company considers all highly liquid investments with maturities of 90 days or less from the purchase date to be cash equivalents. As of December 31, 2014 and 2015 and June 30, 2016, the Company had no cash equivalents. All cash was held in depository accounts and is reported at fair value.

Accounts Receivable

There were no accounts receivables at December 31, 2014. Accounts receivable of $0.3 million at December 31, 2015 and of $1.4 million at June 30, 2016 consist of receivables from Vertex Pharmaceuticals, Incorporated ("Vertex") and are recorded at invoiced amounts due under the Vertex collaboration agreement (see Note 9). As Vertex is a creditworthy entity and maintains an ongoing relationship with the Company, the Company did not have an allowance for estimated losses recorded related to these receivable.

Concentrations of Credit Risk and Off-balance Sheet Risk

Financial instruments that potentially subject the Company to concentrations of credit risk are primarily cash. The Company's cash is held in accounts with financial institutions that management believes are creditworthy. The Company has not experienced any credit losses in such accounts and does not believe it is exposed to any significant credit risk on these funds. The Company has no financial instruments with off-balance sheet risk of loss.

Deferred Public Offering Costs

Deferred public offering costs, which primarily consist of direct, incremental legal and accounting fees relating to the IPO, are capitalized within other assets. The deferred issuance costs will be offset against IPO proceeds upon the consummation of the offering. In the event the offering is terminated, deferred offering costs will be expensed. The Company had incurred $0.1 million and $2.1 million in IPO costs as of December 31, 2015 and June 30, 2016, respectively.

Fair Value of Financial Instruments

The Company's financial instruments consist of accounts payable, accrued expenses and other non-current liabilities. The Company is required to disclose information on all assets and liabilities reported at fair value that enables an assessment of the inputs used in determining the reported fair values. FASB ASC Topic 820, *Fair Value Measurement and Disclosures* ("ASC 820"), established a hierarchy of inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the observable inputs be used when available. Observable inputs are inputs that market participants would use in pricing the financial instrument based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the financial instrument and are developed based on the best information available in the circumstances.

The accounting standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value, which are the following:

Level 1 —	Quoted prices in active markets that are accessible at the market date for identical unrestricted assets or liabilities.
Level 2 —	Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs for which all significant inputs are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
Level 3 —	Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

To the extent that valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The carrying amount of accounts receivable, accounts payable, accrued expenses, and other non-current liabilities as reported on the consolidated balance sheets as of December 31, 2014 and 2015, and as of June 30, 2016, approximate fair value, due to the short-term duration of these instruments. The Company may elect to measure financial instruments and certain other items at fair value at specified election dates in the future.

Property and Equipment

Property and equipment is stated at cost, less accumulated depreciation. Maintenance and repairs that do not improve or extend the lives of the respective assets are expensed to operations as incurred. Upon disposal, the related cost and accumulated depreciation is removed from the accounts and any resulting gain or loss is included in the results of operations. Depreciation is recorded using the straight-line method over the estimated useful lives of the respective assets, which are as follows:

Asset	Estimated useful life
Computer equipment and software	3 years
Furniture, fixtures, and other	5 years
Laboratory equipment	5 years
Leasehold improvements	Shorter of useful life or remaining lease term

Impairment of Long-lived Assets

The Company evaluates long-lived assets for potential impairment when events or changes in circumstances indicate the carrying value of the assets may not be recoverable. Recoverability is measured by comparing the book value of the assets to the expected future net undiscounted cash flows that the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the book value of the assets exceed their fair value. The Company has not recognized any impairment losses in the years ended December 31, 2014 and 2015 and in the six months ended June 30, 2015 and 2016.

Revenue Recognition

To date, the Company's only source of revenue has been the collaboration and license agreement with Vertex (see Note 9).

The Company recognizes revenue in accordance with ASC Topic 605, *Revenue Recognition* ("ASC 605"). Accordingly, revenue is recognized for each unit of accounting when all of the following criteria are met:

- Persuasive evidence of an arrangement exists;
- Delivery has occurred or services have been rendered;
- The seller's price to the buyer is fixed or determinable; and
- Collectability is reasonably assured.

Amounts received prior to satisfying the revenue recognition criteria are recorded as deferred revenue. Amounts expected to be recognized as revenue within the 12 months following the balance sheet date are classified in current liabilities. Amounts not expected to be recognized as revenue within the 12 months following the balance sheet date are classified as deferred revenue within non-current liabilities.

The Company evaluates multiple-element arrangements based on the guidance in FASB ASC Topic 605-25, *Revenue Recognition—Multiple-Element Arrangements* ("ASC 605-25"). Pursuant to the guidance in ASC 605-25, the Company evaluates multiple-element arrangements to determine (i) the deliverables included in the arrangement and (ii) whether the individual deliverables represent separate units of accounting or whether they

must be accounted for as a combined unit of accounting. When deliverables are separable, consideration received is allocated to the separate units of accounting based on the relative selling price method and the appropriate revenue recognition principles are applied to each unit. When the Company determines that an arrangement should be accounted for as a single unit of accounting, the Company must determine the period over which the performance obligations will be performed and revenue will be recognized. This evaluation requires the Company to make judgments about the individual deliverables and whether such deliverables are separable from the other aspects of the contractual relationship. Deliverables are considered separate units of accounting provided that (i) the delivered item has value to the collaboration partner on a standalone basis and (ii) if the arrangement includes a general right of return with respect to the delivered item, delivery or performance of the undelivered item is considered probable and substantially in the Company's control. In assessing whether an item has standalone value, the Company considers factors such as the research, development, manufacturing and commercialization capabilities of the collaboration partner and the availability of the associated expertise in the general marketplace. In addition, the Company considers whether the collaboration partner can use any other deliverable for its intended purpose without the receipt of the remaining deliverable, whether the value of the deliverable is dependent on the undelivered item, and whether there are other vendors that can provide the undelivered items.

The consideration received under the arrangement that is fixed or determinable is then allocated among the separate units of accounting based on the relative selling prices of the separate units of accounting. The Company determines the selling price of a unit of accounting within each arrangement following the hierarchy of evidence prescribed by ASC 605-25. Accordingly, the Company determines the estimated selling price for units of accounting within each arrangement using vendor-specific objective evidence ("VSOE") of selling price, if available; third-party evidence ("TPE") of selling price if VSOE is not available; or best estimate of selling price ("BESP") if neither VSOE nor TPE is available. The Company typically uses BESP to estimate the selling price as it generally does not have VSOE or TPE of selling price for its units of accounting. Determining the BESP for a unit of accounting requires significant judgment. In developing the BESP for a unit of accounting, the Company considers applicable market conditions and relevant entity-specific factors, including factors that were contemplated in negotiating the agreement with the customer and estimated costs. The Company periodically validates the BESP used for units of accounting by evaluating whether changes in the key assumptions used to determine the BESP will have a significant effect on the allocation of arrangement consideration between multiple units of accounting.

The Company recognizes arrangement consideration allocated to each unit of accounting when all of the following criteria are met for that particular unit of accounting: persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price to the buyer is fixed or determinable, and collectability is reasonably assured. In the event that a deliverable does not represent a separate unit of accounting, the Company recognizes revenue from the combined unit of accounting over the contractual or estimated performance period for the undelivered items, which is typically the term of the Company's research and development obligations. If there is no discernible pattern of performance or objectively measurable performance measures do not exist, then the Company recognizes revenue under the arrangement on a straight- line basis over the period the Company is expected to complete its performance obligations. Conversely, if the pattern of performance over which the service is provided to the customer can be determined and objectively measurable performance measures exist, then the Company recognizes revenue under the arrangement using the proportional performance method. Revenue recognized is limited to the lesser of the cumulative amount of payments received or the cumulative amount of revenue earned, as determined using the straight-line method or proportional performance method, as applicable, as of the period ending date.

Significant management judgment is required in determining the level of effort required under an arrangement and the period over which the Company expects to complete its performance obligations under an arrangement. Steering committee services that are not inconsequential or perfunctory and that are determined to be performance obligations are combined with other research services or performance obligations required under an arrangement, if any, in determining the level of effort required in an arrangement and the period over which the Company expects to complete its aggregate performance obligations.

At the inception of an arrangement that includes milestone payments, the Company evaluates whether each milestone is substantive and at risk to both parties on the basis of the contingent nature of the milestone. This evaluation includes an assessment of whether: (i) the consideration is commensurate with either the Company's performance to achieve the milestone or the enhancement of the value of the delivered item as a result of a specific outcome resulting from the Company's performance to achieve the milestone, (ii) the consideration relates solely to past performance, and (iii) the consideration is reasonable relative to all of the deliverables and payment terms within the arrangement. The Company evaluates factors such as the scientific, clinical, regulatory, commercial and other risks that must be overcome to achieve the particular milestone and the level of effort and investment required to achieve the particular milestone in making this assessment. There is considerable judgment involved in determining whether a milestone satisfies all of the criteria required to conclude that a milestone is substantive. The Company will recognize revenue in its entirety upon successful accomplishment of any substantive milestones, assuming all other revenue recognition criteria are met. Milestones that are not considered substantive are recognized as earned if there are no remaining performance obligations or over the remaining period of performance, with a cumulative catch-up being recognized for the elapsed portion of the period of performance, assuming all other revenue recognition criteria are met.

The Company will recognize royalty revenue in the period of sale of the related product(s), based on the underlying contract terms, provided that the reported sales are reliably measurable and the Company has no remaining performance obligations, assuming all other revenue recognition criteria are met.

Research and Development Expenses

Research and development costs, which include employee compensation costs, facilities, lab supplies and materials, overhead, preclinical development, and other related costs, are charged to expense as incurred. Research and development costs also include the costs the Company incurs in its performance of services or provision of materials in connection with the funded research undertaken as a part of the Company's collaborative agreement with Vertex. See Note 9 for further details.

Operating Leases

The Company leases office and laboratory facilities under a non-cancelable operating lease agreements. The lease agreements contain free or escalating rent payment provisions. The Company recognizes rent expense under such leases on a straight-line basis over the term of the lease with the difference between the expense and the payments recorded as deferred rent on the consolidated balance sheets. Lease renewal periods are considered on a lease-by-lease basis in determining the lease term.

Equity-based Compensation Expense

The Company recognizes equity-based compensation expense for awards of equity instruments to employees and non-employee directors (including awards granted by Fay Participation Corp., See Note 12) based on the grant date fair value of those awards in accordance with FASB ASC Topic 718, *Stock Compensation* ("ASC 718"). ASC 718 requires all equity-based compensation awards to employees and non-employee directors, including grants of restricted shares and stock options, to be recognized as expense in the statements of operations based on their grant date fair values. The Company estimates the fair value of stock options using the Black-Scholes option pricing model. The Company uses the value of its Common Shares to determine the fair value of restricted share awards.

The Company accounts for stock options issued to non-employees under FASB ASC Topic 505-50, *Equity- Based Payments to Non-Employees* ("ASC 505-50"). As such, the value of such options is periodically remeasured and income or expense is recognized over their vesting terms. Compensation cost related to awards with service-based vesting schedules is recognized using the straight-line method.

The Black-Scholes option pricing model requires the input of certain subjective assumptions, including (i) the expected share price volatility, (ii) the calculation of expected term of the award, (iii) the risk-free interest rate and (iv) the expected dividend yield. Due to the lack of a public market for the trading of the Company's Common Shares and a lack of company-specific historical and implied volatility data, the Company has based its estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. The historical volatility is calculated based on a period of time commensurate with the expected term assumption. The group of representative companies have characteristics similar to the Company, including stage of product development and focus on the life science industry. The Company uses the simplified method, which is the average of the final vesting tranche date and the contractual term, to calculate the expected term for options granted to employees as it does not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term. For options granted to non-employees, the Company utilizes the contractual term of the arrangement as the basis for the expected term assumption. The risk-free interest rate is based on a treasury instrument whose term is consistent with the expected term of the stock options. The Company uses an assumed dividend yield of zero as the Company has never paid dividends and has no current plans to pay any dividends on its Common Shares.

The Company expenses the fair value of its equity-based compensation awards granted to employees on a straight-line basis over the associated service period, which is generally the period in which the related services are received. The Company measures equity-based compensation awards granted to non-employees at fair value as the awards vest and recognizes the resulting value as compensation expense at each financial reporting period.

The Company records the expense for equity-based compensation awards subject to performance-based milestone vesting over the remaining service period when management determines that achievement of the milestone is probable. Management evaluates when the achievement of a performance-based milestone is probable based on the expected satisfaction of the performance conditions as of the reporting date. There have only been four such awards to date.

Patent Costs

Costs to secure and prosecute patent application and other legal costs related to the protection of the Company's intellectual property are expensed as incurred, and are classified as general and administrative expenses in the Company's consolidated statements of operations.

Income Taxes

Income taxes are recorded in accordance with FASB ASC Topic 740, *Income Taxes* ("ASC 740"), which provides for deferred taxes using an asset and liability approach. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial reporting and tax reporting basis of assets and liabilities and are measured using enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. Valuation allowances are provided if, based upon the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. The Company has evaluated available evidence and concluded that the Company may not realize all the benefit of its deferred tax assets; therefore a valuation allowance has been established for the amount of the deferred tax assets that the Company does not believe is more likely than not to be realized.

The Company accounts for uncertain tax positions in accordance with the provisions of ASC 740. When uncertain tax positions exist, the Company recognizes the tax benefit of tax positions to the extent that the benefit will more likely than not be realized. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position as well as consideration of the available facts and circumstances. As of December 31, 2014 and 2015, and June 30, 2016, the Company does not have any significant uncertain tax positions. The Company's practice is to recognize interest and/or penalties related to income tax matters in income tax expense. See Note 13 for further details.

Comprehensive Loss

Comprehensive loss consists of net income or loss and changes in equity during the period from transactions and other events and circumstances generated from non-owner sources. The Company's net loss equals comprehensive loss, net of any changes in the foreign currency translation adjustment, for all periods presented. In addition, comprehensive loss attributable to the noncontrolling interest equals net loss for all periods presented.

Variable Interest Entities

The Company reviews each legal entity formed by parties related to the Company to determine whether or not the Company has a variable interest in the entity and whether or not the entity would meet the definition of a VIE in accordance with FASB ASC Topic 810, *Consolidation* ("ASC 810"). If the entity is a VIE, the Company assesses whether or not the Company is the primary beneficiary of that VIE based on a number of factors, including (i) which party has the power to direct the activities that most significantly affect the VIE's economic performance, (ii) the parties' contractual rights and responsibilities pursuant to any contractual agreements and (iii) which party has the obligation to absorb losses or the right to receive benefits from the VIE. If the Company determines it is the primary beneficiary of a VIE, the Company consolidates the financial statements of the VIE into the Company's consolidated financial statements at the time that determination is made. The Company evaluates whether it continues to be the primary beneficiary of any consolidated VIEs on a quarterly basis. If the Company were to determine that it is no longer the primary beneficiary of a consolidated VIE, or no longer has a variable interest in the VIE, it would deconsolidate the VIE in the period that the determination is made.

If the Company determines it is the primary beneficiary of a VIE that meets the definition of a business, the Company measures the assets, liabilities and noncontrolling interests of the newly consolidated entity at fair value in accordance with FASB ASC Topic 805, *Business Combinations* ("ASC 805") at the date the reporting entity first becomes the primary beneficiary.

For the year ended December 31, 2014, the Company consolidated TRACR as a VIE. For the year ended December 31, 2015, and the six months ended June 30, 2015 and 2016, the Company consolidated the financial statements of TRACR into the Company's consolidated financial statements as it was both a VIE and a majority owned subsidiary. See Note 4 for further details.

Noncontrolling Interest

The Company records noncontrolling interest, which relates to TRACR, a consolidated VIE as of December 31, 2014 and a majority owned subsidiary as of December 31, 2015 and June 30, 2016, on its consolidated balance sheets. The Company records net loss attributable to noncontrolling interest on its consolidated statements of operations, reflecting the loss from noncontrolling interest for the reporting period, which is evaluated each reporting period. See Note 4 for further details related to TRACR.

Intangible Assets

The Company's intangible assets consist of acquired intellectual property rights and relate to the Company's interest in TRACR. Intangible assets are recorded at fair value at the date of the business combination and are stated in the consolidated balance sheets net of accumulated amortization and impairments, if applicable. The Company evaluates the remaining useful life of intangible assets subject to amortization on a periodic basis to determine whether events and circumstances would indicate impairment or warrant a revision to the remaining useful life. If the estimate of an intangible asset's remaining useful life is changed, the Company amortizes the remaining carrying value of the intangible asset prospectively over the revised remaining useful life.

Intangible assets related to the acquired intellectual property rights are amortized over their estimated useful lives using the straight-line method as the pattern of revenues cannot be reasonably estimated. Amortization

related to the acquired intellectual property rights is recorded in general and administrative expense in the consolidated statements of operations and comprehensive loss. See Note 4 for further details relating to the noncontrolling interest related to TRACR.

Net Loss Per Share Attributable to Common Shareholders

Basic net loss per Common Share is calculated by dividing the net loss attributable to common shareholders by the weighted-average number of Common Shares outstanding during the period, without consideration for potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss attributable to common shareholders by the weighted-average number of Common Shares and potentially dilutive securities outstanding for the period determined using the treasury-stock and if-converted methods.

For purposes of the diluted net loss per share calculation, redeemable convertible preferred shares, convertible loans and unvested restricted Common Shares are considered to be potentially dilutive securities, but are excluded from the calculation of diluted net loss per share because their effect would be antidilutive and therefore, basic and diluted net loss per share were the same for all periods presented.

Subsequent Events

The Company considers events or transactions that occur after the balance sheet date but prior to the date the financial statements are available to be issued for potential recognition or disclosure in the financial statements. The Company has completed an evaluation of all subsequent events after the audited balance sheet date of December 31, 2015 through May 13, 2016, and after the unaudited balance sheet date of June 30, 2016 through August 12, 2016, the dates the financial statements were available to be issued, and, as it relates to Note 17, through July 26, 2015, the date the revised financial statements were issued, to ensure that this filing includes appropriate disclosure of events recognized in the financial statements as of December 31, 2015 and June 30, 2016, and events which occurred subsequently but were not recognized in the financial statements. See Note 16 for further details concerning events subsequent to the balance sheet date.

Recent Accounting Pronouncements

In May 2014, the FASB issued ASU 2014-9, *Revenue from Contacts with Customers* (“ASU 2014-09”), updated guidance and disclosure requirements for recognizing revenue. The new revenue recognition standard provides a five-step analysis of transactions to determine when and how revenue is recognized. The revenue standard is based on the principle that revenue should be recognized to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In March 2016, the FASB issued an amendment to the standard, ASU 2016-8, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)* (“ASU 2016-08”), which clarifies the implementation guidance on principal versus agent considerations. In April 2016, the FASB issued an additional amendment to the standard, ASU 2016-10, *Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing* (“ASU 2016-10”), which clarifies the guidance on identifying performance obligations and the implementation guidance on licensing. The collective guidance will be effective for the Company on January 1, 2018, with early adoption permitted, but not earlier than January 1, 2017. The guidance may be applied retrospectively to each prior period presented or retrospectively with the cumulative effect recognized as of the date of initial adoption. The Company is currently assessing the potential impact of the adoption of these standards on its consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, *Presentation of Financial Statements—Going Concern* (Subtopic 205-40): Disclosure of Uncertainties about an Entity’s ability to Continue as a Going Concern (“ASU 2014-15”), which requires management to evaluate whether there is substantial doubt about an entity’s ability to continue as a going concern and to provide related footnote disclosures. This guidance is effective for the annual reporting period ending after December 15, 2016 and for annual and interim periods thereafter. The Company plans to adopt this guidance if applicable in 2016. The Company expects the new guidance will only effect the disclosures in its consolidated financial statements.

In November 2014, the FASB issued ASU No. 2014-16, *Derivatives and Hedging* (Topic 815)— *Determining Whether the Host Contract in a Hybrid Financial Instrument Issued in the Form of a Share is More Akin to Debt or to Equity* ("ASU 2014-16"), which clarifies how to evaluate the economic characteristics and risk of a host contract in a hybrid financial instrument that is issued in the form of a share. In evaluating the nature of a host contract, an entity should assess the substance of the relevant terms and features (that is, the relative strength of the debt-like or equity-like terms and features given the facts and circumstances) when considering how to weight those terms and features. The effects of initially adopting ASU 2014-16 should be applied on a modified retrospective basis to existing hybrid financial instruments issued in a form of a share as of the beginning of the fiscal year for which the amendments are effective. Retrospective application is permitted to all relevant prior periods. ASU 2014-16 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015. The adoption of ASU 2014-16 in 2016 does not have a material impact on the financial statements.

In February 2015, the FASB issued ASU No. 2015-02, *Consolidation* (Topic 810)—*Amendments to the Consolidation Analysis* ("ASU 2015-02"), which changes the analysis that a reporting entity must perform to determine whether it should consolidate certain types of legal entities. These amendments are effective for fiscal years, and interim periods beginning after December 15, 2015. The adoption of ASU 2015-02 in 2016 does not have a material impact on the financial statements.

In April 2015, the FASB issued ASU No. 2015-03, *Interest—Imputation of Interest* (Subtopic 835-30)— *Simplifying the Presentation of Debt Issuance Costs* ("ASU 2015-03"), which requires that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct deduction from the carrying amount of that debt liability, consistent with debt discounts. The amendments in ASU 2015-03 are effective for financial statements issued for fiscal years beginning after December 15, 2015 and for annual and interim periods thereafter. The adoption of ASU 2015- 03 in 2016 does not have a material impact on the financial statements.

In November 2015, the FASB issued ASU No. 2015-17, *Income Taxes* (Topic 740)—*Balance Sheet Classification of Deferred Taxes* ("ASU 2015-17"), which requires that deferred tax liabilities and assets be classified as noncurrent in a classified statement of financial position, rather than separated into current and noncurrent amounts. This guidance is effective for financial statements issued for annual periods beginning after December 15, 2017, and interim periods within annual periods beginning after December 15, 2018. Early adoption is permitted. The Company has elected to early adopt ASU 2015-17 retrospectively in the fourth quarter of 2015. As a result, all deferred tax assets and liabilities have been presented as noncurrent in its consolidated balance sheets as of December 31, 2014 and 2015. There was no impact on the Company's consolidated statement of operations as a result of the adoption of ASU 2015-17.

In February 2016, the FASB issued ASU No. 2016-02, *Leases* ("ASU 2016-02"), which applies to all leases and will require lessees to record most leases on the balance sheet, but recognize expense in a manner similar to the current standard. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018 and interim periods within those years, which is the year ended December 31, 2019 for the Company. Entities are required to use a modified retrospective approach of adoption for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. Full retrospective application is prohibited. The Company is evaluating the new guidance and the expected effect on its consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, Compensation—*Stock Compensation (Topic 718)* ("ASU 2016-09"). The guidance changes how companies account for certain aspects of equity-based payments to employees. Entities will be required to recognize income tax effects of awards in the income statement when the awards vest or are settled. The guidance also allows an employer to repurchase more of an employee's shares than it can under current guidance for tax withholding purposes providing for withholding at the employee's maximum rate as opposed to the minimum rate without triggering liability accounting and to make a policy election to account for forfeitures as they occur. The updated guidance is effective for annual periods beginning

after December 15, 2017. Early adoption is permitted. The Company is currently evaluating the impact of the adoption of ASU 2016-09 on its consolidated financial position and results of operations.

3. Property and Equipment, net

The Company did not own any capital assets during the year ended December 31, 2014. Property and equipment, net, consists of the following (in thousands):

	As of December 31, 2015	As of June 30, 2016 (unaudited)
Computer equipment and software	$ 118	$ 110
Furniture, fixtures, and other	238	305
Laboratory equipment	861	2,106
Leasehold improvements	88	124
Construction work in process	95	53
	1,400	2,698
Accumulated Depreciation	(72)	(321)
Property and equipment, net	$ 1,328	$ 2,377

Depreciation expense for the year ended December 31, 2014 and 2015, and for the six months ended June 30, 2015 and 2016, was $0, $0.1 million, $0 and $0.2 million, respectively.

4. Variable Interest Entities

TRACR Hematology Limited

On January 23, 2014, the founders of the Company formed TRACR in the United Kingdom, to further the development of the CRISPR/Cas9 technology into medicines for the treatment of blood-borne illnesses. On April 14, 2014, TRACR licensed certain foundational intellectual property rights under joint ownership from Dr. Emmanuelle Charpentier to develop and commercialize products for the treatment or prevention of human diseases related to hemoglobinopathies. See Note 9 for further details of the technology license agreement with Dr. Charpentier.

On April 14, 2014 the Company determined that it became the primary beneficiary of TRACR based on, among other factors, the Company's power to direct the activities that significantly impacted the economic performance of TRACR and the Company's financing of contractual obligations on behalf of TRACR, and the period in which the Company began to benefit from research and development of TRACR technology. Accordingly, the Company consolidated TRACR's financial statements as a consolidated VIE beginning on April 14, 2014.

The Company determined that TRACR met the definition of a business under the terms of ASC 805. As such, the Company accounted for the initial consolidation of TRACR as a business combination and measured the assets, liabilities and noncontrolling interests of TRACR in accordance with ASC 805 at the date the Company first became the primary beneficiary on April 14, 2014. The Company recorded $0.5 million of intangible assets on the Company's consolidated balance sheet for TRACR's intellectual property rights along with a related deferred tax liability of $0.1 million. TRACR did not have material operations prior to consolidation on April 14, 2014.

On March 24, 2015, the Company acquired 4,600 ordinary shares of TRACR, representing 82.1% of the ordinary share capital, pursuant to a share exchange transaction with the shareholders of TRACR. In exchange for 4,600 ordinary shares of TRACR and the assignment of certain rights to subscribe ordinary shares of

TRACR, the Company issued 852,846 Common Shares to two founders of TRACR, 656,031 restricted Common Shares to certain employees and nonemployees, and 459,217 Common Shares to Fay Participation Corporation ("Fay Corp."), an entity formed to hold Common Shares for future issuance to certain employees and non- employees. As of December 31, 2015 and June 30, 2016, the Company held 4,600 ordinary shares of TRACR, representing 82.1% of the ordinary share capital of TRACR.

Upon the share exchange on March 24, 2015, the Company recorded an adjustment of $0.1 million to decrease the carrying amount of the noncontrolling interest in TRACR and reflect the Company's increased ownership interest in TRACR's net assets. This adjustment was recognized directly in equity through additional paid-in capital and is attributable to the controlling interest. See Note 12 for further details.

Pursuant to the share exchange transaction on March 24, 2015, the Company also entered into a free standing call option agreement with Dr. Emmanuelle Charpentier for 1,000 ordinary shares of TRACR, representing the remaining 17.9% of the ordinary share capital of TRACR. Under the terms of the call option agreement, the Company has the option to acquire the remaining 1,000 shares of TRACR held by Dr. Charpentier in exchange for 328,017 Common Shares of the Company. In the event the option is exercised by the Company prior to a liquidation event, the Company will indemnify Dr. Charpentier for all taxes owed as a result of the exchange. In addition, upon a bankruptcy, liquidation, closing of an IPO, winding up of the Company, a change in control or other deemed liquidation event, as defined in the call option agreement, the remaining 1,000 ordinary shares of TRACR held by Dr. Charpentier will automatically convert into 328,017 Common Shares of the Company.

5. Intangible Assets

The Company's intangible assets consist of acquired intellectual property rights related to the Company's initial consolidation of TRACR in April 2014. Acquired intellectual property rights had an estimated life of 10 years. Intangible assets, net of accumulated amortization, are as follows:

Acquired intangible asset	Cost	Accumulated Amortization	Net
As of December 31, 2014	$547	$ (38)	$509
As of December 31, 2015	$547	$ (93)	$454
As of June 30, 2016 (unaudited)	$547	$ (121)	$426

The Company recorded amortization expense of $38,000 and $0.1 million for the years ended December 31, 2014 and 2015, respectively, and $28,000 for each of the six months ended June 30, 2015 and 2016, respectively. As of December 31, 2015 and June 30, 2016, the remaining amortization period was 8.3 years and 7.7 years, respectively. The Company has not recorded any impairment charges for the years ended December 31, 2014 and 2015 nor the six months ended June 30, 2015 and 2016. The estimated future amortization of acquired intangible assets as of December 31, 2015 is expected to be as follows (in thousands):

Year Ending December 31:	Amount
2016	$ 55
2017	55
2018	55
2019	55
2020	55
Thereafter	179
Total amortization	$ 454

6. Accrued Expenses

Accrued expenses consist of the following (in thousands):

	As of December 31,		As of June 30
	2014	2015	2016
			(unaudited)
Payroll and employee-related costs	$ 330	$ 773	$ 1,250
Research costs	164	910	1,150
Licensing fees	—	1,055	281
Professional fees	236	2,412	4,062
Intellectual property costs	1,089	2,592	4,127
Advance pay settlement liability	—	—	1,949
Other	105	688	365
Total	$ 1,924	$ 8,430	$ 13,184

7. Convertible Loans

2015 Convertible Loan Agreement with Vertex and certain existing shareholders

On October 26, 2015, the Company entered into a convertible loan agreement with Vertex and certain existing shareholders (the "Vertex Convertible Loan") under which the Company could borrow up to $40.0 million. The Vertex Convertible Loan accrues interest at 2.5% per annum and had an initial maturity date of April 26, 2016 subject to acceleration upon the occurrence of certain conditions stated in the loan agreement (the "Maturity Date"). On various dates between November 23 and December 7, 2015, the Company borrowed aggregate net proceeds of $38.2 million. The Vertex Convertible Loan included various embedded conversion, redemption and other features, as further described below, none of which required separate accounting from the host instrument under ASC 815. On January 29, 2016, all of the outstanding principal plus accrued interest of $0.2 million under the Vertex Convertible Loan was automatically converted into 2,859,278 Series B Preferred Shares in connection with a qualified financing described below.

An event of default ("Event of Default") is defined in the Vertex Convertible Loan Agreement and includes events of bankruptcy, insolvency or reorganization and, solely at the election of Vertex, a material breach that is not cured within the applicable notice and cure periods of the strategic collaboration, option and license agreement entered into by Vertex and the Company. See Note 9 for further details of the strategic, option and license agreement.

Conversion Terms

On the Maturity Date, the outstanding principal plus accrued interest automatically converts into Series B Preferred Shares at $9.33 per share.

In the event the Company issues equity securities prior to the Maturity Date with aggregate proceeds of not less than $50.0 million, of which $5.0 million is raised from investors other than Vertex or existing shareholders, the outstanding principal plus accrued interest under the Vertex Convertible Loan automatically converts into the newly issued equity securities at the price per share paid by the investors in the financing.

In the event of an underwritten public offering with shares of the Company listed on the New York Stock Exchange, the NASDAQ Global Market, or the NASDAQ Global Select Market, resulting in at least $50.0 million of proceeds to the Company ("IPO") closed prior to Maturity, the holders may elect, prior to the closing of the IPO, to convert the outstanding principal plus accrued interest into Series B Preferred Shares at $9.33 per share. Any Vertex Convertible Loan not converted prior to the closing of the IPO, shall automatically convert into Common Shares at a price paid by the investors for such shares in the IPO.

Upon a liquidation event prior to the Maturity Date, the holders may elect to convert the outstanding principal plus accrued interest into either Common Shares at a price of $9.33 per share or Series B Preferred Shares at a price of $9.33 per share.

Redemption Terms

Upon an Event of Default, all outstanding principal plus accrued interest becomes immediately due and payable.

Upon a liquidation event, if the holders do not exercise their conversion right, the outstanding principal plus accrued interest shall become due and payable in cash on the business day following the date on which the Company or its shareholders receive the proceeds from the liquidation event.

Contingent Interest

Upon an Event of Default, the outstanding amount of the Vertex Convertible Loan shall bear, in addition to the base interest of 2.5% per annum, default interest at a rate of 7.5% per annum.

Convertible Loan with Bayer HealthCare LLC

Concurrent with the execution of the Bayer Joint Venture agreement, the Company also entered into a Convertible Loan Agreement ("Bayer Convertible Loan") with Bayer for $35.0 million. The Bayer Convertible Loan accrued interest at 2.0% per annum and matured on January 29, 2016 (the "Maturity Date"). On January 29, 2016, the Company issued the Bayer Convertible Loan in exchange for aggregate net proceeds of $35.0 million. The Bayer Convertible Loan included various embedded conversion, redemption and other features, none of which required separate accounting from the host instrument under ASC 815.

Conversion of Convertible Loans to Series B Preferred Shares

On January 29, 2016, concurrent with the issuance of the Bayer Convertible Loan, all of the outstanding principal under the $35.0 million Bayer Convertible Loan automatically converted into 2,605,330 Series B Preferred Shares at $13.43 per share. The Company determined the fair value of the Bayer Convertible Loan to be $24.5 million based on the fair value of the underlying Series B Preferred Shares that were exchanged as part of the immediate conversion. As the Bayer Convertible Loan was executed in contemplation of the joint venture agreement with Bayer, the Company evaluated the Bayer Convertible Loan as part of one multiple-element arrangement and using a relative fair value allocation allocated $27.0 million of aggregate arrangement consideration to the Bayer Convertible Loan upon issuance (See Note 9). Upon conversion, the Company accreted the Bayer Convertible Loan to its face value of $35.0 million through a charge to interest expense of $8.0 million and converted the $35.0 million to Series B Preferred Shares under the conversion model.

The receipt of $35.0 million in proceeds under the Bayer Convertible Loan in exchange for equity securities, combined with the $38.2 million in proceeds from Vertex Convertible Loan, triggered an automatic conversion provision of the Vertex Convertible Loan Agreement. Accordingly, on January 29, 2016, the Vertex Convertible Loan, including loans from existing shareholders, plus accrued interest also converted into 2,859,278 of Series B Preferred Shares at $13.43 per share. The Company determined the fair value of the Vertex Convertible Loan to be $26.9 million based on the fair value of the underlying Series B Preferred Shares that were exchanged as part of the conversion. Upon extinguishment, the Company recorded a gain on extinguishment of $11.5 million for the difference between the carrying value of the debt and the fair value of the Series B Preferred Shares issued to settle the debt under the general extinguishment model.

8. Commitments and Contingencies

Operating Leases

The Company had five non-cancellable operating leases for office, laboratory, and corporate housing spaces during the year ended December 31, 2015. One of these leases expired in May 2015, and three other leases expire in 2016. The lease of the Company's primary research facility space expires in February 2022, with one optional five-year extension period. Rental expense for the years ended December 31, 2014 and 2015 was $17,000 and $1.3 million, respectively, and for the six months ended June 30, 2015 and 2016, was $0.2 million and $1.0 million, respectively.

Future minimum payments required under the leases as of December 31, 2015, are as follows (in thousands):

Year Ending December 31:	Amount
2016	$ 1,291
2017	1,341
2018	1,381
2019	1,422
2020	1,465
Thereafter	1,700
Total minimum lease payments	$ 8,600

During the six months ended June 30, 2016, the Company entered into two sublease agreements for office and laboratory space, not included in the table above. The first of these began on April 1, 2016, and expires on January 31, 2017, and shall continue on a tenancy-at-will basis with either party having the right to terminate with thirty days of notice. The Company's contractual obligation related to lease payments over the term of this sublease is approximately $0.3 million.

The second lease is expected to begin on February 1, 2017, and expires ten years from the commencement date. The Company has the option to extend the term of the lease by five years. The Company's contractual obligation related to lease payments over the term of the sublease is approximately $56.2 million.

In April 2016, the Company entered a $2.5 million letter of credit to secure the Company's obligations under the facility leases in Cambridge, Massachusetts. The letters of credit are secured by cash held in a restricted depository account.

Letters of Credit

As of December 31, 2014 and 2015, and June 30, 2016, the Company had restricted cash of $0.1 million, $0.7 million and $3.2 million, respectively, representing letters of credit securing the Company's obligations under the facility leases in Cambridge, Massachusetts and certain credit card arrangements. The letters of credit are secured by cash held in a restricted depository account.

Sponsored Research Agreements

The Company has engaged several research institutions to identify new delivery strategies and applications of the CRISPR/Cas9 technology. As a result of these efforts, the Company has agreed to sponsor three research programs during 2016, with one of these programs continuing through 2018. In association with these agreements, the Company has committed to making payments for related research and development services of $1.2 million, $0.4 million, and $0.2 million in 2016, 2017, and 2018, respectively.

License Agreement with Anagenesis Biotechnologies SAS

On June 7, 2016, the Company entered into a license agreement with Anagenesis Biotechnologies SAS ("Anagenesis") pursuant to which the Company received an exclusive worldwide license to Anagenesis' proprietary technology for all human based muscle diseases. Pursuant to the license agreement, the Company made a one-time upfront payment of $0.5 million to Anagenesis and is required to pay Anagenesis up to $89.0 million upon the achievement of future clinical, regulatory and sales milestones for each of the first allogeneic and autologous licensed products developed pursuant to the license agreement, as well as low single digit royalty payments on future sales of commercialized product candidates. The Company recorded the $0.5 million payment during the six months ended June 30, 2016 as research and development expense on the consolidated statement of operations.

Licensing Agreements

In April 2014, the Company and TRACR entered into technology license agreements with Dr. Emmanuelle Charpentier pursuant to which the Company licensed Dr. Charpentier's interest to certain intellectual property rights jointly owned by Dr. Charpentier and others to develop and commercialize products for the treatment or prevention of human diseases. See Note 9 for further details.

Litigation

Under the Charpentier license agreement, the Company licenses a U.S. patent application that is currently subject to interference proceedings declared by the Patent Trial and Appeal Board of the U.S. Patent and Trademark Office. If the Company's licensed patent family does not prevail in these proceedings, claims could be asserted against the Company during development or commercialization of a product that relies on this technology. Defense of any such claims would involve substantial litigation expense, and any successful claim of infringement against the Company could require the Company to pay substantial damages.

9. Significant Contracts

Intellectual Property Agreements

CRISPR Therapeutics AG—Charpentier License Agreement

In April 2014, the Company entered into a technology license agreement with Dr. Emmanuelle Charpentier pursuant to which the Company licensed certain intellectual property rights under joint ownership from Dr. Charpentier to develop and commercialize products for the treatment or prevention of human diseases other than hemoglobinopathies ("CRISPR—Charpentier License Agreement"). In consideration for the granting of the license, the Company paid Dr. Charpentier an upfront fee of CHF 0.1 million ($0.1 million), and agreed to pay an immaterial annual license maintenance fee if Dr. Charpentier is not otherwise engaged in a service arrangement with the Company. During the years ended December 31, 2014 and 2015, and six months ended June 30, 2015 and 2016, Dr. Charpentier has been in a consulting arrangement with the Company, as such, no annual payments have been made under this provision. Dr. Charpentier is entitled to receive nominal clinical milestone payments. The Company is also obligated to pay Dr. Charpentier a low single digit percentage of sublicensing payments received under any sublicense agreement with a third party. In addition, the Company is also obligated to pay to Dr. Charpentier a low single-digit percentage royalty based on annual net sales of licensed products and licensed services by the Company and its affiliates and sublicensees.

During the year ended December 31, 2015 and the six months ended June 30, 2015 and 2016, the Company recorded $0.9 million, $0, and $0.3 million, respectively, of sublicensing fees due to Dr. Emmanuelle Charpentier in research and development expense under the terms of the CRISPR—Charpentier License Agreement that was triggered by the execution of the Vertex collaboration agreement and the Bayer agreement.

TRACR Hematology Limited—Charpentier License Agreement

In April 2014, TRACR entered into a technology license agreement ("TRACR—Charpentier License Agreement") with Dr. Emmanuelle Charpentier pursuant to which TRACR licensed certain intellectual property

rights under joint ownership from Dr. Charpentier to develop and commercialize products for the treatment or prevention of human diseases related to hemoglobinopathies. In consideration for the granting of the license, Dr. Charpentier is entitled to receive nominal clinical milestone payments. TRACR is also obligated to pay Dr. Charpentier a low single digit percentage of sublicensing payments received under any sublicense agreement with a third party. In addition, TRACR is obligated to pay to Dr. Charpentier low single digit percentage royalties based on annual net sales of licensed products and licensed services by the Company and its affiliates and sublicensees.

During the year ended December 31, 2015 and the six months ended June 30, 2015 and 2016, the Company recorded $0.1 million, $0, and $0, respectively, of sublicensing fees due to Dr. Emmanuelle Charpentier in research and development expense under the terms of the TRACR—Charpentier License Agreement that was triggered by the execution of the Vertex collaboration agreement.

Patent Assignment Agreement

In November 2014, the Company entered into a patent assignment agreement ("Patent Assignment Agreement") with Dr. Emmanuelle Charpentier, Dr. Ines Fonfara, and the University of Vienna (collectively, the "Assignors"), pursuant to which the Company was assigned all rights, title and interest in and to certain patent rights claimed in the U.S. Patent Application No.61/905,835. In consideration for the assignment of such rights, the Assignors are entitled to receive clinical milestone payments totaling up to €0.3 million (approximately $0.4 million) in the aggregate for the first human therapeutic product. The Company is also obligated to pay to the Assignors low single digit royalties based on annual net sales of licensed products and licensed services by the Company and its affiliates and sublicensees.

During the year ended December 31, 2015 and the six months ended June 30, 2015 and 2016, the Company recorded $0.1 million, $0, and $19,000, respectively, of sublicensing fees due to the Assignors in research and development expense under the terms of the Patent Assignment Agreement that was triggered by the execution of the Vertex collaboration agreement and the Bayer Agreement.

Collaboration Agreement with Vertex Pharmaceuticals, Incorporated

Summary of Agreement

On October 26, 2015, the Company entered into a strategic collaboration, option, and license agreement ("Collaboration Agreement") with Vertex, focused on the use of CRISPR's gene editing technology, known as CRISPR/Cas9, to discover and develop potential new treatments aimed at the underlying genetic causes of human disease. The collaboration will evaluate the use of CRISPR-Cas9 across multiple diseases where targets have been validated through human genetics. Vertex and CRISPR will focus their initial gene editing research on discovering treatments to address the mutations and genes known to cause and contribute to sickle cell disease, beta-thalessemia and cystic fibrosis. Vertex and CRISPR will also evaluate a specified number of other genetic targets as part of the collaboration. For up to six targets, Vertex has an exclusive option to obtain: (1) an exclusive license to commercialize CRISPR technology ("Exclusive License") or (2) a co-exclusive license with respect to hemoglobinopathy and beta-globin targets ("Co-exclusive License").

The collaborative program of research to be undertaken by the parties pursuant to the Collaboration Agreement will be conducted in accordance with a mutually agreed upon research plan which outlines each party's research and development responsibilities across the three research areas. The Company's research and development responsibilities under the research plan ("R&D Services") are related to generating genome editing reagents that modify gene targets selected by Vertex. Except with respect to the Company's obligations under the mutually agreed upon research plan, Vertex has sole responsibility, at its own costs, for the worldwide research, development, manufacturing and commercialization of products resulting from the exclusive licenses obtained.

The research collaboration will end on the earlier of the date on which Vertex has exercised six options to obtain exclusive/co-exclusive licenses with respect to a collaboration target, or the fourth anniversary of the

effective date of the agreement. The research term may be extended as mutually agreed by the parties up to nine additional months to complete any research activities under the approved research plan that are incomplete on the fourth anniversary of the effective date.

The Collaboration Agreement will be managed on an overall basis by a project leader from each of the Company and Vertex. In addition, the activities under the collaboration agreement during the research term will be governed by a joint research committee ("JRC") formed by an equal number of representatives from the Company and Vertex. Decisions by the JRC will be made by consensus of the group, however, Vertex will have final decision-making authority in the event of disagreement, provided it is in good faith and not contrary to any explicit clause of the agreement.

In connection with the agreement, Vertex made a nonrefundable upfront payment of $75.0 million. In addition, Vertex will fund all of the discovery activities conducted pursuant to the agreement. For potential hemoglobinopathy treatments, including treatments for sickle cell disease, the Company and Vertex will share equally all research and development costs and worldwide revenues. For other targets that Vertex elects to license, Vertex would lead all development and global commercialization activities. For each of up to six targets that Vertex elects to license, other than hemoglobinopathy and beta-globin targets, the Company has the potential to receive up to $420.0 million in development, regulatory and commercial milestones and royalties on net product sale.

Vertex is entitled to terminate the Collaboration Agreement as a whole, or terminate the Collaboration Agreement in part with respect to a particular collaboration program, for convenience by providing the Company 90 days' written notice of such termination; provided, however, that if any termination applies to a product for which Vertex has received marketing approval, Vertex will provide CRISPR no less than 270 days' notice of such termination. If Vertex is in material breach of this Collaboration Agreement, the Company has the right to terminate the Collaboration Agreement in full at its discretion 90 days after delivery of written notice to Vertex.

The Company evaluated the Collaboration Agreement in accordance with the provisions of ASC 605-25. The Company's arrangement with Vertex contains the following initial deliverables: (i) a non-exclusive research license; (ii) the option to obtain an exclusive license for up to six Collaboration Targets; (iii) the option to obtain a co-exclusive license for hemoglobinopathy or beta-globin targets (which would be included within the maximum number of the aforementioned six collaboration targets); (iv) R&D Services; and (v) JRC participation.

Management considered whether any of these deliverables could be considered separate units of accounting. Regarding the non-exclusive research license, the Company concluded that it does not have stand-alone value separate from the option to exercise the exclusive or co-exclusive license since Vertex would not benefit from acquiring a research license without the ability to obtain the license to commercialize the results of that research. As a result, the Company concluded that the research license should be combined with those options.

Regarding the R&D Services, the Company concluded that there are other vendors in the market that could perform the related services. As such the Company concluded the R&D Services represent a separate unit of accounting.

Regarding the JRC obligations, the Company concluded that the JRC obligations deliverable has standalone value from the option to license because the services could be performed by an outside party. As such the Company concluded the JRC obligations represent a separate unit of accounting.

As a result, management concluded that there are four units of accounting at the inception of the agreement: (i) a combined unit of accounting representing the non-exclusive research license, and the option for up to six exclusive licenses to develop and commercialize the collaboration targets as these options do not have stand- alone value; (ii) a combined unit of accounting representing the non-exclusive research license, and the option

for a co-exclusive license (subject to the aforementioned six license limit) to develop and commercialize the hemoglobinopathy or beta-globin targets as these options do not have stand-alone value; (iii) the performance of R&D Services; and (iv) the participation in the JRC.

The Company has determined that neither VSOE of selling price nor TPE of selling price is available for any of the units of accounting identified at inception of the arrangement. Accordingly, the selling price of each unit of accounting was determined based on the Company's BESP. The Company developed the BESP for all of the units of accounting included in the collaboration agreement with the objective of determining the price at which it would sell such an item if it were to be sold regularly on a standalone basis.

The Company developed the BESP for the R&D Services and the JRC participation primarily based on the nature of the services to be performed and estimates of the associated effort and cost of the services, adjusted for a reasonable profit margin that would be expected to be realized under similar contracts. The Company's BESP for the R&D Services was $26.7 million. The Company's BESP for the JRC participation services was de minimis based on an estimate of time spent on preparation, participation, review and travel for the meetings.

The Company's BESP for each combined unit of the non-exclusive research license and the option for an exclusive license to develop and commercialize a single collaboration target is $37.7 million. As the Company expects Vertex to exercise five of these options, the total BESP is $188.5 million. BESP for this item was determined based on probability and present value adjusted cash flows from the royalties and milestones outlined in the Collaboration Agreement. BESP reflects the level of risk and expected probability of success inherent in the nature of the associated research area.

The Company's BESP for a non-exclusive research license and the option for a co-exclusive license to develop and commercialize a single hemoglobinopathy or beta-globin collaboration target is $12.5 million. As the Company expects Vertex to exercise one of these options, the total BESP is $12.5 million. BESP for this item was determined based on probability and present value adjusted cash flows from the equal sharing of project worldwide net profit or net loss. BESP reflects the level of risk and expected probability of success inherent in the nature of the associated research area.

Allocable arrangement consideration at inception is comprised of: (i) the up-front payment of $75.0 million, (ii) the estimated R&D services of $26.7 million and (iii) payments related to the estimated exercise of options on future exclusive licenses for five targets of $50.0 million. The aggregate allocable arrangement consideration of $151.7 million was allocated among the separate units of accounting using the relative selling price method as follows: (i) R&D Services: $17.8 million, (ii) non-exclusive research license, and the option for an Exclusive License to develop and commercialize the five collaboration targets: $125.5 million, (iii) non-exclusive research license, and the option for one Co-exclusive License to develop and commercialize one hematology target: $8.4 million.

The amount allocated to R&D Services will be recognized as the R&D Services are performed. The Company will recognize as license revenue an equal amount of the total arrangement consideration allocated to the exclusive licenses as each individual license is delivered to Vertex upon Vertex's exercise of its options to such licenses. The Company will recognize $8.4 million as license revenue when the Co-exclusive License is delivered to Vertex upon Vertex's exercise of its options to such license.

The Company has evaluated all of the milestones that may be received in connection with the Collaboration Agreement. In evaluating if a milestone is substantive, the Company assesses whether: (i) the consideration is commensurate with either the Company's performance to achieve the milestone or the enhancement of the value of the delivered item(s) as a result of a specific outcome resulting from the Company's performance to achieve the milestone, (ii) the consideration relates solely to past performance, and (iii) the consideration is reasonable relative to all of the deliverables and payment terms within the arrangement. The Company notes that the $10.0 million due upon the exercise of each option for an Exclusive License was determined to be part of the fixed and determinable consideration allocable at contract inception and is not subject to milestone method accounting.

The first potential milestone the Company will be entitled to receive is the $10.0 million milestone due upon the filing of an Investigational New Drug Application ("IND") for a selected Exclusive License. As the first developmental milestone of the agreement relates to the filing of an IND, the Company has considered it to be substantive. Accordingly, such amounts will be recognized as revenue in full in the period in which the associated milestone is achieved, assuming all other revenue recognition criteria are met. There are no other substantive milestones. As such the total amount of substantive milestones subject to milestone method accounting treatment is $10.0 million for each selected Exclusive License.

The remaining milestones are predominately related to the development and commercialization of a product resulting from the arrangement and are payable with respect to each selected Exclusive License. Each milestone is payable only once per collaboration target, regardless of the number of products directed to such collaboration target that achieve the relevant milestone event. There are nine remaining clinical development and regulatory approval milestones which may trigger proceeds of up to $90.0 million and $235.0 million, respectively, for each selected Exclusive License, and two commercial milestones which may trigger proceeds of up to $75.0 million for each selected Exclusive License (which, when combined with the $10.0 million due upon exercise of the exclusive option and the $10.0 million development milestone associated with an IND, total $420.0 million for each selected Exclusive License), as follows:

Developmental Milestone Events

1. Initiation of the first Clinical Trial of a Product
2. Establishment of POC for a Product
3. Initiation of the first Phase 3 Clinical Trial of a Product
4. Acceptance of Approval Application by the FDA for a Product
5. Acceptance of Approval Application by the EMA for a Product
6. Acceptance of Approval Application by a Regulatory Authority in Japan for a Product
7. Marketing Approval in the US for a Product
8. Marketing Approval in the EU for a Product
9. Marketing Approval in Japan for a Product

Commercial Milestone Events

1. Annual Net Sales for Products with respect to a Collaboration Target exceed $500 million
2. Annual Net Sales for Products with respect to a Collaboration Target exceed $1,000 million

After Vertex has exercised an Exclusive License option, Vertex will be solely responsible for all research, development, manufacturing, and commercialization of licensed agents and products for the relevant target. As the Company's involvement in this process is limited to observer status, management determined that milestones are not considered substantive because they do not relate solely to the past performance of the Company. Upon the achievement of a milestone, management will evaluate whether the triggering event occurs during or after the research term. If the triggering event occurs during the research term, management has elected to treat the milestone similar to an up-front payment. In these cases, if and when any of these milestones are received, the amount will be included in the overall arrangement consideration and allocated to the remaining identified deliverables. To the extent all deliverables have been satisfied, any additional consideration allocated to them could be immediately recognized. If the triggering event occurs after the research term, the Company will recognize the associated revenue in the period in which the event occurs. The Company will recognize royalty revenue in the period of sale of the related product(s), based on the underlying contract terms, provided that the reported sales are reliably measurable and the Company has no remaining performance obligations, assuming all other revenue recognition criteria are met.

During the year ended December 31, 2015 and six months ended June 30, 2015 and 2016, the Company recognized $0.2 million, $0, and $1.3 million of revenue with respect to the collaboration with Vertex. Research and development expense incurred by the Company in relation to its performance under the Collaboration

Agreement for the year ended December 31, 2015 and the six months ended June 30, 2015 and 2016, was $0.3 million, $0, and $3.3 million, respectively. As of December 31, 2015 and June 30, 2016, there is $75.1 million and $75.8 million of non-current deferred revenue related to the Company's collaboration with Vertex.

Joint Venture with Bayer Healthcare LLC

On December 19, 2015, the Company entered into an agreement to establish a joint venture ("Bayer Joint Venture") with Bayer Healthcare LLC ("Bayer") to research the development of new therapeutics to cure blood disorders, blindness, and congenital heart disease. On February 12, 2016, the Company and Bayer completed the formation of the joint venture entity, Casebia Therapeutics LLP ("Casebia"), a limited liability partnership formed in the United Kingdom. Bayer and the Company each received a 50% equity interest in the entity in exchange for their contributions to the entity. The Company contributed $0.1 million in cash and licensed its proprietary CRISPR/Cas9 gene editing technology and intellectual property for selected disease indications. Bayer contributed its protein engineering expertise and relevant disease know-how.

Bayer will provide up to $300.0 million in research and development funding to Casebia over the first five years, subject to certain conditions, of which the first $45.0 million was contributed upon formation in the first quarter of 2016. Under the joint venture agreement, the Company has no obligation to provide any additional funding and the Company's ownership interest will not be diluted from future contributions from Bayer. The activities of Casebia are controlled by a management board under the joint control of the Company and Bayer. As Casebia is jointly controlled by the Company and Bayer, the Company accounts for its 50% interest using the equity method of accounting.

Under the agreement, Casebia will pay the Company up to $35.0 million in exchange for a worldwide, exclusive license to commercialize the Company's CRISPR/Cas9 technology specifically for the indications designated by Casebia. In March 2016, the Company received a non-refundable up-front payment of $20.0 million as a technology access fee. The remaining $15.0 million will be paid upon the delivery of the consent necessary from the patent holders of the Company's intellectual property. There are no milestone, royalties or other payments due to the Company under this aspect of the agreement. The Company determined that the contribution of the CRISRP/Cas9 technology by license to Casebia did not meet the definition of a business under ASC 805.

The Company will also provide to Casebia compensated research and development services through a separate agreement. No research and development services were rendered by the Company during the six months ended June 30, 2016.

Concurrent with the execution of the Bayer Joint Venture agreement, the Company also entered into the Bayer Convertible Loan for $35.0 million.

As the Bayer Joint Venture (including the CRISPR/Cas9 technology license and the research and development services) and the Bayer Convertible Loan were executed at the same time, the Company determined that they should be evaluated as one multiple-element arrangement. Additionally, the Company also determined that ASC 845, *Nonmonetary Transactions* ("ASC 845") did not apply to this arrangement given the Company's significant continuing involvement with Casebia and the amount of cash involved in the arrangement. As a result, the Company analogized to ASC 605-25 in allocating the relative fair value of the consideration received to the different elements of the arrangement.

The Company allocated the fair value of the consideration received using a relative fair value allocation. The allocable arrangement consideration included (i) the total cash payment by Casebia for the technology access fee, net of the Company's $0.1 million contribution, of $34.9 million, (ii) the fair value of the equity interest in the Joint Venture of $36.4 million, (iii) the $35.0 million received from the issuance of the Convertible Debt, and (iv) $6.3 million of estimated cash consideration to be received under the research and development service arrangement, accumulating to $112.6 million.

The Company identified the following elements under the transaction:

(i) Combined element of an exclusive, worldwide, royalty free, license to the CRISPR/Cas9 technology specifically for the indications designated by Casebia, and delivery of the consents of the assignors of the underlying patents to the technology to develop, manufacture, and commercialize licensed products under that license

(ii) Research and development services, and

(iii) The issuance of the Bayer Convertible Loan.

The Company determined the fair value of the license was $71.4 million based on the consideration paid and the fair value of the 50% interest in Casebia, which was determined utilizing discounted cash flows based on reasonable estimates and assumptions of cash flows expected from Casebia. The fair value of the separate research and development services was determined to be $6.3 million. The fair value of the Bayer Convertible Loan was determined to be $24.5 million, based on the fair value of the underlying preferred shares that were exchanged as part of the immediate conversion. Using a relative fair value allocation, the Company allocated the aggregate arrangement consideration paid as follows:

(i) $63.6 million was allocated to the license and patent holder consent combined element

(ii) $0.6 million was allocated to the future research and development services

(iii) $27.0 million was allocated to the Bayer Convertible Loan

The difference between combined above amounts of $91.2 million and the total allocable arrangement consideration of $112.6 million is due to allocable arrangement consideration which is not yet due associated with the $6.3 million of estimated cash consideration to be received under the research and development service arrangement and the remaining $15.0 million of the license fee which will be paid upon the delivery of the consent necessary from the patent holders of the Company's intellectual property.

Upon the delivery of the patent holders' consent, the combined amount attributed to the license element will be recognized as other income. Until such time, it will be reflected as a Deferred Gain on the consolidated balance sheet. The Company determined that this amount did not meet the definition of revenue because the licensing of its technology in connection with the formation of a joint venture is not part of the Company's major ongoing or central operations.

The amount attributed to future research and development services is recorded as deferred revenue as of June 30, 2016 and will be recognized in future periods as the research and development services are provided.

As the amount allocated to the Bayer Convertible Loan represents a $8.0 million discount to its $35 million face value, the Company recognized interest expense during the six months ended June 30, 2016 equal to the discount. The Convertible Loan automatically converted into Series B preferred shares on its January 29, 2016 maturity date.

As of June 30, 2016, the Company has recorded an equity method investment of $35.7 million equal to the fair value of the Company's interest in Casebia of $36.4 million (which was included in the allocable arrangement consideration described above) less equity method losses of $0.7 million for the six months ended June 30, 2016.

Total operating expenses, and net loss of Casebia for the six months ended June 30, 2016 was $74.8 million, which included research and development expenses equal to $71.4 million for the fair value of the CRISPR license acquired. During the six months ended June 30, 2016, the Company recorded equity method losses of $0.7 million. The Company has not recorded unrealized losses of $35.7 million from its accounting of the equity in the losses of Casebia until such time that the deferred gain allocated to the license and patent holder consent combined element is realized.

Subscription Agreement with Bayer Global Investments B.V.

On December 19, 2015, the Company entered into a subscription agreement, ("Subscription Agreement"), with Bayer Global Investments B.V., ("Bayer BV"). Pursuant to the Subscription Agreement, Bayer BV was given the option, at its election, to purchase $35.0 million of the Company's Common Shares in a private placement concurrent with the Company's IPO at a per share price equal to the public offering price, see Note 16 for further details.

10. Redeemable Convertible Preferred Shares

As of December 31, 2015, the Company had 18,837,024 registered Preferred Shares issued and outstanding in share capital, which was comprised of (i) 440,001 Series A-1 Preferred Shares CHF 0.03 par value per share; (ii) 3,120,001 Series A-2 Preferred Shares, CHF 0.03 par value per share; (iii) 10,758,006 Series A-3 Preferred Shares, CHF 0.03 par value per share; and, (iv) 4,519,016 Series B Preferred Shares, CHF 0.03 par value per share, (collectively, the "Preferred Shares").

As of June 30, 2016, the Company had 27,135,884 registered Preferred Shares issued and outstanding in share capital, which was comprised of (i) 440,001 Series A-1 Preferred Shares CHF 0.03 par value per share; (ii) 3,120,001 Series A-2 Preferred Shares, CHF 0.03 par value per share; (iii) 10,758,006 Series A-3 Preferred Shares, CHF 0.03 par value per share; and, (iv) 12,817,876 Series B Preferred Shares, CHF 0.03 par value per share.

The Company's redeemable convertible preferred shares have been classified as temporary or mezzanine equity on the accompanying consolidated balance sheets in accordance with authoritative guidance for the classification and measurement of redeemable securities as the Preferred Shares are contingently redeemable at the option of the holders.

In October 2013, the Company issued 440,001 Series A-1 Preferred Shares for CHF 1.14 ($1.28) per share, resulting in gross proceeds of CHF 0.5 million ($0.6 million). Under the terms of the Series A-1 Preferred Shares Investment Agreement, the holders had the right to purchase an additional 1,315,790 Series A-1 Preferred Shares at CHF 1.14 ($1.28) per share (the "Series A-1 Tranche Rights") contingent upon two or more shareholders holding Series A-1 Preferred Shares. These rights were not legally detachable. The Series A-1 Tranche Rights were evaluated under ASC 480 and ASC 815 and it was determined that they did not meet the requirements for separate accounting from the initial issuance of Series A-1 Preferred Shares. In connection with the issuance of the Series A-1 Preferred Shares, the Company also issued 335,000 Common Shares to the Series A Preferred Shares investors. The Company recorded the difference of $0.1 million between the fair value of the Common Shares issued and the price paid by the investors as an issuance cost discount to the Series A-1 Preferred Shares upon issuance. See Note 11 for further details.

In April 2014, the Company issued 3,120,001 Series A-2 Preferred Shares in exchange for CHF 3.05 ($3.47) per share of such amount CHF 1.45 ($1.65) per share was received upon issuance resulting in gross proceeds of CHF 4.5 million ($5.1 million) and the balance of CHF 1.60 ($1.82) per share was called in February 2015 by the Board of Directors of the Company resulting in additional gross proceeds of CHF 5.0 million ($5.3 million).

In connection with the issuance of the Series A-2 Preferred Shares, the Series A-1 Tranche Rights were terminated without exercise in April 2014. The Company's policy requires the evaluation of amendments to preferred shares qualitatively to determine whether they are considered a modification or extinguishment. Based on this approach, the amendment to the terms of the Series A-1 Preferred Shares was considered an extinguishment due to the significance of the modifications to the substantive contractual terms of the Series A-1 Preferred Shares. Accordingly, the Company recorded a loss of $0.7 million on the Series A-1 Preferred Shares within additional paid-in capital equal to the difference between the fair value of the Series A-1 Preferred Shares of $1.2 million and the carrying amount of the Series A-1 Preferred Shares of $0.4 million upon extinguishment. The loss on extinguishment is reflected in the calculation of net loss available to common stockholders in accordance with FASB ASC Topic 260, *Earnings per Share* ("ASC 260").

In April 2015, the Company issued 10,758,006 Series A-3 Preferred Shares in exchange for $4.24 per share whereby $2.12 per share was received upon issuance, resulting in gross proceeds of $22.8 million and the balance of $2.12 per share was due upon meeting certain milestones. As of December 31, 2015, none of the milestones had occurred and the Company had an outstanding subscription receivable of $22.8 million related to the Series A-3 Preferred Shares. In connection with the issuance of the Series A-3 Preferred Shares, the Company amended the dividend and conversion terms of the Series A-1 and Series A-2 Preferred Shares. The Company's policy requires the evaluation of amendments to equity classified preferred shares qualitatively to determine whether they are considered a modification or extinguishment. Based on this approach, the amendment to the terms of the Series A-1 and A-2 Preferred Shares was considered a modification and as a result, there was no adjustment to the carrying value of the Series A-1 and A-2 Preferred Shares. The balance of the Series A-3 Preferred Share subscription receivable of $2.12 per share was called on May 5, 2016 by the Board of Directors and gross proceeds of $22.8 million were received by May 27, 2016.

In May 2015, the Company issued 4,519,016 Series B Preferred Shares in exchange for CHF 6.20 ($6.74) per share resulting in gross proceeds of CHF 28.0 million ($30.5 million).

In January 2016, the Company issued 5,464,608 Series B Preferred Shares upon conversion of $38.4 million of Vertex Convertible Loans plus accrued interest and $35.0 million of Bayer Convertible Loans at a conversion price of $13.43 per share.

In June 2016, the Company issued 2,834,252 Series B Preferred Shares in exchange for $13.43 per share resulting in gross proceeds of $38.1 million.

Redemption

The Preferred Shares may be redeemed upon written election of the holders of 66.7% of the Preferred Shares. The Series B Preferred Shares issued in January 2016, Series B Preferred Shares issued in May 2015, Series A-3 Preferred Shares, Series A-2 Preferred Shares and Series A-1 Preferred Shares may be redeemed at $13.43, CHF 6.20, $2.12, CHF 3.05 and CHF 1.14 per share, respectively, or the Series B Preferred Shares, Series A-3 Preferred Shares, Series A-2 Preferred Shares and Series A-1 Preferred Shares may receive an amount equal to the amount entitled if the Preferred Shares converted into shares of Common Shares on a one-for-one basis on the redemption date. At December 31, 2015, the Series A-3 Preferred Shares are redeemable up to the amount paid in prior to the receipt of the payment of the Series A-3 Preferred Shares subscription receivable. Following receipt of the payment of the Series A-3 Preferred Shares subscription receivable in May 2016, the Series A-3 Preferred Shares may be redeemed at $4.24.

Conversion

Preferred Shares are convertible into Common Shares initially on a one-for-one basis, subject to adjustment for share splits, share dividends, combination of shares, reorganization, recapitalization, reclassification, or similar events.

The Preferred Shares automatically convert into Common Shares at the then applicable conversion rate, upon either (i) the consent of at least 66.7% of the then outstanding Preferred Shares, voting as a separate class; or (ii) upon the closing of a firmly underwritten IPO of the common shares that is (A) pursuant to a registration statement under the Securities Act of 1933, as amended, (B) with aggregate proceeds of at least $50.0 million before deduction of underwriter expenses or commissions, (C) at a per share public offering price greater than two times the Series A-3 Original Issue Price (as adjusted for share splits, share dividends, combination of shares, reorganization, recapitalization, reclassification, or similar event) and (D) with the shares of the Company listed on the New York Stock Exchange, the NASDAQ Global Market, or the NASDAQ Global Select Market ("QPO").

The Series B, Series A-2 and Series A-1 Preferred Shares are convertible to Common Shares at the holders' option at any time, at the applicable conversion rate. The Series A-3 Preferred Shares are convertible to Common

Shares at the holder's option subsequent to the receipt of the payment of the Series A-3 Preferred Shares subscription receivable in May 2016.

The Series A-3 Preferred Shares are automatically converted to Common Shares at a rate of ten Series A-3 Preferred Shares for each Common Share if the payment of the Series A-3 Preferred Shares subscription receivable is not made timely when called by the Board of Directors of the Company. The balance of the Series A-3 Preferred Share subscription receivable of $2.12 per share was called on May 5, 2016 by the Board of Directors and gross proceeds of $22.8 million were received by May 27, 2016.

Dividends

The holders of Preferred Shares are entitled to receive non-cumulative dividends, when and if declared by the Board of Directors, on a pari passu basis prior and in preference to the holders of the Common Shares at a rate of 8% per annum of the original issuance price, subject to adjustment for additional capital contributions. The holders of Preferred Shares shall participate pro rata in any dividends paid on the Common Shares on an as- converted to Common Shares basis.

Liquidation Preference

Upon a liquidation event, after all debts of the Company have been paid, the remaining net proceeds shall be distributed pari passu to the holders of Preferred Shares until they have received the amount paid upon issuance plus any subsequent contributions made into the legal capital reserve of the Company. If upon a liquidation event, the assets of the Company legally available for distribution to the preferred shareholders is insufficient to pay the full amounts, then the entire assets of the Company legally available for distribution shall be distributed with equal priority and pro rata among the holders of the Preferred Shares in proportion to the full amounts they would otherwise be entitled to receive. After the payment of the liquidation rights to the holders of Preferred Shares, the remaining assets of the Company are to be distributed with equal priority and pro rata among the holders of the Common Shares in proportion to the number of shares held.

Anti-Dilution Protection

In the event of future capital increases, the holders of the Series B and A-3 Preferred Shares are irrevocably entitled to newly issued Preferred Shares at their nominal value to compensate for their dilution, if any, between the subscription price of the new shares and the price previously paid for the Preferred Shares. The Board of Directors shall determine the number of new Series B and A-3 Preferred Shares to be issued in such a case at par value. The same procedure shall apply in the event of stock splits, reverse stock splits, stock dividends, or similar transactions.

Voting Rights

Except for matters with specific voting rights, the holders of Preferred Shares vote together with the holders of the Common Shares as a single class on any matter presented to the shareholders of the Company for their action or consideration at any meeting of the shareholders of the Company or by written consent of the shareholders in lieu of meetings. The holders of the Preferred Shares are entitled to the number of votes equal to the number of Common Shares into which each of the Preferred Shares are convertible at the time of such vote, initially on a one-for-one basis. A vote of 66.7% of the Preferred Shareholders, voting as a single class, is required for certain matters, including any change to the Company's Articles of Association or number of Directors. In addition, the holders of Preferred Shares have the right to designate five (5) of the eight (8) members of the Board of Directors.

11. Share Capital

As of December 31, 2015 and June 30, 2016, the Company had 5,528,079 and 5,662,126 registered Common Shares, respectively, and 18,837,024 and 27,135,884 registered Preferred Shares, respectively,

outstanding with a par value of CHF 0.03 per share in share capital. Of the 5,662,126 Common Shares registered, 134,047 of these relates to an unvested restricted share award, and is not considered outstanding. Outstanding share capital also includes 8,747 vested restricted shares, which are authorized in conditional capital but not yet registered in the Swiss Commercial Register as issued share capital.

Conditional Capital

Since inception, the Company has created conditional capital for the establishment of its 2015 option and grant plan (the "2015 Plan"), shares issuable under the terms of the call option agreement with Dr. Emmanuelle Charpentier, and Preferred Shares issuable under the terms of the convertible loan financings. As of December 31, 2015, the Company had conditional capital which would enable an increase in its share capital of up to 2,444,364 registered Common Shares with a par value of CHF 0.03 per share, which was comprised of (i) 2,116,347 Common Shares for grants under the 2015 Plan and (ii) 328,017 Common Shares for issuance under the terms of the call option agreement with Dr. Charpentier. As of June 30, 2016, the Company had conditional capital which would enable an increase in its share capital of up to 4,123,651 registered Common Shares with a par value of CHF 0.03 per share, which was comprised of (i) 3,795,634 Common Shares for grants under the 2015 Plan and (ii) 328,017 Common Shares for issuance under the terms of the call option agreement with Dr. Charpentier. See Note 4 for further details of the call option agreement with Dr. Charpentier.

In January 2016, the Company created additional conditional capital which would enable an increase in its share capital of up to 7,637,354 Series B Preferred Shares, with a par value of CHF 0.03 per share, issuable under certain terms of the convertible loans. On January 29, 2016, the convertible loans converted and 5,464,608 Series B Preferred Shares moved from conditional capital to issued share capital.

In March 2016, the Company created additional conditional capital which would enable an increase in its share capital of up to 906,667 Common Shares, with a par value of CHF 0.03 per share, for future grants under the 2015 Plan. In June 2016, the Company created additional conditional capital which would enable an increase in its share capital of up to 906,667 Common Shares, with a par value of CHF 0.03 per share, for future grants under the 2015 Plan. See Note 12 for further details of the 2015 Plan.

Conditional Capital Reserved for Future Issuance

The Company had the following conditional capital reserved for future issuance:

Type of Share Capital	Conditional Capital	As of December 31, 2014	As of December 31, 2015	As of June 30, 2016 (unaudited)
Common Shares	Charpentier Call Option	—	328,017	328,017
Common Shares	Vested unissued restricted share awards under 2015 Plan	—	—	8,747
Common Shares	Unvested unissued restricted share awards under 2015 Plan	—	142,794	—
Common Shares	Outstanding stock options awards under 2015 Plan	—	1,939,986	2,709,572
Common Shares	Reserved for future issuance under the 2015 Plan	—	33,567	1,077,315
	Total	—	2,444,364	4,123,651

Common Share Issuances

In October 2013, the Company issued 2,579,985 Common Shares to its founders ("Founders' Shares") and 335,000 Common Shares to its investors for CHF 87,450. In December 2013, the Company issued an additional 645,000 Common Shares to two investor directors in exchange for total proceeds of CHF 19,350, which was recorded as a Common Shares subscription receivable until April 2014, when cash proceeds were received. The Company recorded the difference between the fair value of the Common Shares issued and the price paid by the investors as an issuance cost discount to the Series A-1 Preferred Share issuance in October 2013. The Company recorded the difference between the fair value of the Common Shares issued and the price paid by the founders and directors as equity-based compensation expense. See Note 12 for further details of equity-based compensation related to these Common Share issuances.

In April 2014, in conjunction with the sale of its Series A-2 Preferred Shares, the Company and its founders agreed to transfer 729,800 Founders' Shares to several non-employees. The shares transferred were subject to service-based vesting conditions. If the holder of any restricted Common Shares terminates the service relationship, the unvested shares are subject to a right of repurchase at an escalating purchase price. Both vested and unvested shares are subject to a right of repurchase at the original purchase price upon certain triggering events such as termination for cause, material breach of agreement, and insolvency of the holder. In addition, the founders and an investor also agreed to transfer 1,192,585 fully vested Common Shares to Fay Corp. The Company recorded equity-based compensation expense for the Founders Shares and the Common Shares issued with vesting restrictions from the founders and Fay Corp. See Note 12 for further details of equity-based compensation related to these transfers.

In March 2015, the Company entered into an agreement to acquire 82.1% of the ordinary share capital of TRACR in a share exchange transaction. In connection with this share exchange transaction, the Company issued 852,846 Common Shares to two founders of TRACR, 459,217 Common Shares to Fay Corp. and 656,031 restricted Common Shares to certain employee and non-employee advisors of TRACR. If the holders of any restricted common shares terminates the service relationship the unvested shares are subject to a right of repurchase at an escalating purchase price. If any of these holders of restricted Common Shares are terminated, in certain circumstances, the vested and unvested shares are subject to a right of repurchase at the shareholder's original purchase price. The Company recorded equity-based compensation expense in April 2015 for the incremental value received by the holders in exchange for the vested TRACR shares as of the exchange date. The Company is also recognizing additional equity-based compensation expense for the exchange of TRACR restricted share awards which will continue to vest over a remaining term in the form of CRISPR restricted share awards. See Note 12 for further details of equity-based compensation related to this share exchange transaction.

Pursuant to the share exchange transaction on March 24, 2015, the Company also entered into a free standing call option agreement with Dr. Emmanuelle Charpentier for 1,000 ordinary shares of TRACR, representing the remaining 17.9% of the ordinary share capital of TRACR. Under the terms of the call option agreement the Company has the option to acquire the remaining 1,000 ordinary shares of TRACR held by Dr. Charpentier in exchange for 328,017 Common Shares. In addition, upon a bankruptcy, liquidation, closing of an IPO, winding up of the Company, a change in control or other deemed liquidation event, as defined in the agreement, the remaining 1,000 ordinary shares of TRACR held by Dr. Charpentier automatically convert into 328,017 Common Shares of the Company. See Note 4 for further details of the call option agreement.

For the year ended December, 31, 2015, the Company has determined that it is considered a passive foreign investment company ("PFIC"). Under the terms of a shareholder agreement, if a U.S. common shareholder elects to file a Qualified Electing Fund ("QEF") and notifies the Company of this election, the Company is required to make advance payments to the shareholder related to their individual 2015 tax liability. Under the shareholder agreement, the Company was obligated to notify investors 30 days after December 31, 2015 that it was considered a PFIC; however, the Company did not finalize the determination of their PFIC status until after this date. If timely notification had been given to the U.S. common shareholders and all U.S. common shareholders notified the Company that a QEF election was made, the Company estimates that it may have been required to make advance payments of up to $2.6 million for the tax year ended December 31, 2015 through a return of capital or dividend. As no QEF elections have been made to date, the Company has not paid or accrued any amounts as of December 31, 2015.

During the quarter ended June 30, 2016, the Company determined that it was probable that it would offer an aggregate settlement of $1.9 million to its U.S. common shareholders in order to release the Company from any future obligation or claims under the shareholder agreement for potential lack of timely notification of the 2015 PFIC status for all years prior to December 31, 2015. This amount represents the Company's best estimate of its probable liability related to this matter and has been recorded in accrued expenses in its consolidated balance sheet as of June 30, 2016 with a corresponding charge of $1.9 million in general and administrative expenses in the consolidated statement of operations during the six months ended June 30, 2016.

If the settlement is not accepted by the U.S. common shareholders, the Company believes the maximum obligation to make advance payments under the shareholder agreement is $2.6 million. The obligation to make advance payments under the shareholder agreement for tax years subsequent to 2015 will terminate upon the closing of an IPO.

The voting, dividend and liquidation rights of the holders of Common Shares are subject to and qualified by the rights, powers and preferences of the holders of Preferred Shares. The Common Shares have the following characteristics:

Voting Rights

The holders of Common Shares are entitled to one vote for each Common Share held at all meetings of shareholders and written actions in lieu of meetings.

Dividends

The holders of Common Shares are entitled to receive dividends, if and when declared by the Board of Directors. As of December 31, 2015 and June 30, 2016, no dividends have been declared or paid since the Company's inception.

Liquidation

After payment to the holders of Preferred Shares of their liquidation preferences, the holders of the Common Shares are entitled to share ratably in the Company's assets available for distribution to shareholders in the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or upon the occurrence of a deemed liquidation event.

12. Equity-based Compensation

2015 Option and Grant Plan

In April 2015, the shareholders approved the 2015 Plan. The 2015 Plan provides for the issuance of equity awards in the form of restricted shares, options to purchase Common Shares which may constitute incentive stock options ("ISOs") or non-statutory stock options ("NSOs"), unrestricted stock unit grants, and qualified performance-based awards to eligible employees, officers, directors, consultants, and other key personnel. Terms of the equity awards, including vesting requirements, are determined by the Board, subject to the provisions of the Plan. Options granted by the Company typically vest over four years and have a contractual life of ten years. As of December 31, 2015, no options were exercised and there were 1,939,986 options outstanding and 142,794 restricted shares granted under the 2015 Plan. As of June 30, 2016, no options were exercised and there were 2,709,572 options outstanding and 142,794 restricted shares granted under the 2015 Plan. As of December 31, 2015 and June 30, 2016, the Company has 33,567 and 1,077,315 Common Shares, respectively, reserved for future grant under the 2015 Plan.

As of December 31, 2015 and June 30, 2016, the Company had conditional capital which would enable an increase in its share capital of up to 2,116,347 and 3,795,634 registered Common Shares, respectively, with a par value of CHF 0.03 per share for grants under the 2015 Plan. In March 2016, the Company created additional conditional capital which would enable an increase in its share capital of up to 906,667 Common Shares, with a par value of CHF 0.03 per share, for future grants under the 2015 Plan. In June 2016, the Company created additional conditional capital which would enable an increase in its share capital of up to 906,667 Common Shares, with a par value of CHF 0.03 per share, for future grants under the 2015 Plan.

Prior to the adoption of the 2015 Plan, certain employees and non-employees were granted restricted Common Shares directly from the Company and from a pool of unrestricted Common Shares held by the founders and Fay Corp. Such shares are treated as issued and outstanding Common Shares by the Company in all periods presented.

Equity-based Compensation Expense

Total equity-based compensation expense is recognized for stock options and restricted shares granted to employees and non-employees and has been reported in the Company's consolidated statements of operations as follows (in thousands):

	Year Ended December 31,		Six Months Ended June 30	
	2014	2015	2015 (Unaudited)	2016 (Unaudited)
Research and development	$ 487	$ 1,924	$ 680	$ 1,491
General and administrative	208	1,760	799	3,032
Total	$ 695	$ 3,684	$ 1,479	$ 4,523

Stock Option Awards

The following table summarizes stock option activity for employees and non-employees (intrinsic value in thousands):

	Stock Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Outstanding at December 31, 2014	—			
Granted	1,939,986	$ 2.31		
Exercised	—			
Cancelled or forfeited	—			
Outstanding at December 31, 2015	1,939,986	$ 2.31	9.7	$ 6,688
Granted (unaudited)	772,252	$ 8.72		
Exercised (unaudited)	—			
Cancelled or forfeited (unaudited)	(2,666)	$ 1.85		
Outstanding at June 30, 2016 (unaudited)	2,709,572	$ 4.14	9.4	$ 23,345
Exercisable at December 31, 2015	243,587	$ 1.88	9.7	$ 946
Vested or expected to vest at December 31, 2015(1)	1,724,013	$ 2.32	9.7	$ 5,927
Exercisable at June 30, 2016 (unaudited)	369,840	$ 1.99	9.2	$ 3,981
Vested or expected to vest at June 30, 2016 (unaudited)(2)	2,480,893	$ 4.11	9.4	$ 21,440

(1) Represents the number of vested options at December 31, 2015 plus the number of unvested options expected to vest based on the unvested options outstanding at December 31, 2015.

(2) Represents the number of vested options at June 30, 2016 (unaudited) plus the number of unvested options expected to vest based on the unvested options outstanding at June 30, 2016 (unaudited).

There were no stock options granted during the year ended December 31, 2014. During the year ended December 31, 2015, the Company granted stock options to purchase an aggregate of 1,939,986 Common Shares with a weighted-average grant date fair value of $3.13. During the six months ended June 30, 2016, the Company granted stock options to purchase an aggregate of 772,252 Common Shares with a weighted-average grant date fair value of $5.89. The expense related to options granted to employees and non-employees was $1.1 million and $33,000, respectively, for the year ended December 31, 2015. The expense related to options granted to employees and non-employees was $1.1 million and $0.1 million, respectively, for the six months ended June 30, 2016.

As of December 31, 2015, no stock options have been exercised, cancelled or forfeited. As of June 30, 2016, no stock options have been exercised and 2,666 options have been cancelled or forfeited. As of December 31, 2015 and June 30, 2016, the total unrecognized compensation cost related to employee, non-vested stock options granted under the 2015 Plan was $4.2 million and $7.4 million, respectively. As of December 31, 2015 and June 30, 2016, the total unrecognized compensation cost related to non- employee, non-vested stock options granted under the 2015 Plan was $0.1 million and $0.1 million, respectively.

The total unrecognized compensation cost for employee and non-employee awards will be adjusted for future forfeitures. As of December 31, 2015 and June 30, 2016, the Company expects to recognize total unrecognized compensation cost over a remaining weighted-average period of 3.3 years and 3.2 years, respectively.

The Company estimates the fair value of each employee and non-employee stock award on the grant date using the Black-Scholes option-pricing model based on the following range of assumptions regarding the fair value of the underlying Common Shares on each measurement date:

	Year Ended December 31, 2015	Six Months Ended June 30, 2016 (unaudited)
Employees:		
Weighted average expected volatility	76.4%	77.9%
Expected term (in years)	6.0	6.0
Risk free interest rate	1.7 - 1.9%	1.4 - 1.5%
Expected dividend yield	0.0%	0.0%
Non employees:		
Weighted average expected volatility	83.3 - 84.2%	—
Expected term (in years)	10.0	—
Risk free interest rate	2.1 - 2.3%	—
Expected dividend yield	0.0%	—

During 2015, the Company granted options to purchase 53,616 Common Shares subject to service and performance-based vesting conditions. As of June 30, 2016 and December 31, 2015, none of these options were vested, however, options to purchase 53,616 Common Shares were deemed probable of vesting.

During 2015, the Company granted options to purchase 207,773 Common Shares subject to performance-based vesting conditions. As of June 30, 2016 and December 31, 2015, options to purchase 90,173 Common Shares with performance-based vesting conditions were vested, as performance conditions were achieved, and options to purchase 62,330 and 27,633 Common Shares, respectively, were deemed probable of vesting.

During the six months ended June 30, 2016, the Company granted options to purchase 13,333 Common Shares subject to performance-based vesting conditions. As of June 30, 2016, none of these options were vested or deemed probable of vesting.

Restricted Share Awards

From time to time, upon approval by the Board of Directors, certain employees and non-employees have been granted restricted Common Shares. These restricted shares are subject to certain transfer restrictions and repurchase rights. Accordingly, the Company has recorded proceeds, if any, from the issuance of restricted shares as a liability in the balance sheets included as a component of accrued expenses or other long term liabilities based on the scheduled vesting dates. The restricted share liability is reclassified into shareholders' (deficit) equity as the restricted shares vest.

During the year ended December 31, 2015, the Company issued 656,031 restricted Common Shares pursuant to the TRACR share exchange transaction. These restricted Common Shares were registered with the Swiss commercial register in April 2015 and are treated as issued and outstanding Common Shares by the Company in all periods presented. During the year ended December 31, 2015, the Company issued 142,794 restricted shares under the 2015 Plan. The Company did not issue any restricted Common Shares in the six months ended June 30, 2016. A summary of the status of and changes in unvested restricted Common Shares as of December 31, 2014 and 2015, and June 30, 2016, is as follows:

	Shares	Weighted-Average Grant Date Fair Value per Share
Unvested Restricted Common Shares as of December 31, 2014	—	$ —
Issued	798,825	$ 2.12
Vested	(400,907)	$ 2.09
Unvested Restricted Common Shares as of December 31, 2015	397,918	$ 2.14
Issued (unaudited)	—	$ —
Vested (unaudited)	(63,414)	$ 2.60
Unvested Restricted Common Shares as of June 30, 2016 (unaudited)	334,504	$ 2.05

There were no restricted share awards issued directly by the Company to employees and non-employees in the year ended December 31, 2014. The expense related to restricted share awards granted directly by the Company to employees and non-employees was $0.1 million and $0.4 million, respectively, for the year ended December 31, 2015, $27,000 and $0.2 million, respectively, for the six months ended June 30, 2015, and $0.1 million and $0.4 million, respectively, for the six months ended June 30, 2016.

As of December 31, 2015 and June 30, 2016, the Company had unrecognized equity-based compensation expense related to its employee unvested restricted share awards of $0.3 million and $0.2 million, respectively. As of December 31, 2015 and June 30, 2016, the Company had unrecognized equity-based compensation expense related to its non-employee unvested restricted share awards of $1.2 million and $2.1 million, respectively.

The total unrecognized compensation cost for employee and non-employee awards will be adjusted for future forfeitures. As of December 31, 2015 and June 30, 2016, the Company expects to recognize total unrecognized compensation cost over a remaining weighted-average period of 2.4 years and 1.9 years, respectively.

The fair value of employee restricted share awards vested during the year ended December 31, 2015 and the six months ended June 30, 2016, based on estimated fair values of the shares underlying the restricted share awards on the day of vesting, was $0.1 million and $32,000, respectively. The fair value of non-employee restricted share awards vested during the year ended December 31, 2015 and the six months ended June 30, 2016, based on estimated fair values of the shares underlying the restricted share awards on the day of vesting, was $0.8 million and $0.3 million, respectively.

In September 2015, a certain executive purchased $0.2 million of Common Shares for CHF 1.80 per share. These shares are subject to certain transfer restrictions and repurchase rights which lapse as the shares vest over a requisite service period, which allow the Company in certain circumstances where the holder’s employment is terminated to repurchase the shares from the employees at the lower of initial purchase price or fair market value. As a result of these repurchase features, the Company has determined the proceeds the Company received for these shares should be recorded as a restricted stock liability until the shares have vested. These 134,047

restricted Common Shares were transferred from conditional capital to share capital in the Swiss commercial register in April 2016 but are unvested and not included in common shares outstanding as of June 30, 2016.

Founders Shares Awards

In October 2013, the Company issued 2,579,985 Founders' Shares and 335,000 Common Shares to its investors in exchange for total proceeds of CHF 87,450. In December 2013, the Company issued an additional 645,000 Common Shares to two directors in exchange for total proceeds of CHF 19,350, which was recorded as a Common Share subscription receivable until April 2014, when cash proceeds were received. The Company recorded the difference between the fair value of the Common Shares issued and the price paid by the founders and directors as equity-based compensation expense in the year ended December 31, 2013.

In April 2014, in conjunction with the sale of its Series A-2 Preferred Shares, the Company and its founders agreed to transfer 729,800 Founders' Shares to certain employee and non-employee advisors. The shares transferred were subject to service-based vesting conditions. If the holder of any restricted Common Shares terminates the service relationship, the unvested shares are subject to a right of repurchase at an escalating purchase price. Both vested and unvested shares are subject to a right of repurchase held by Fay Corp. at the original purchase price upon certain triggering events such as termination for cause, material breach of agreement, and insolvency of the holder. In June 2016, the Company cancelled outstanding restricted shares granted from Founder shares to a non-employee advisor. This award was replaced with restricted shares from Fay Corp.

A summary of the status of and changes in unvested restricted shares transferred as of December 31, 2014 and 2015, and June 30, 2016, is as follows:

	Shares	Weighted-Average Grant Date Fair Value per Share
Unvested Common Shares transferred from Founders' Shares as of December 31, 2013	—	$ —
Transferred	729,800	$ 1.51
Vested	(182,450)	$ 1.51
Unvested Common Shares transferred from Founders' Shares as of December 31, 2014	547,350	$ 1.51
Vested	(263,537)	$ 1.51
Unvested Common Shares transferred from Founders' Shares as of December 31, 2015	283,813	$ 1.51
Vested (unaudited)	(57,850)	$ 1.51
Cancellation of unvested restricted share awards (unaudited)	(68,232)	$ 1.51
Unvested Common Shares transferred from Founders' Shares as of June 30, 2016 (unaudited)	157,731	$ 1.51

The Company recorded equity-based compensation expense for the Common Shares issued with vesting restrictions from the founders to the employee and non-employee advisors as the awards represented compensation for services to be performed for the benefit of the Company. The expense related to the Common Shares transferred from the pool of Founder's Shares to employees and nonemployees with vesting restrictions was $0 and $0.5 million, respectively, for the year ended December 31, 2014. The expense related to the Common Shares transferred from the pool of Founder's Shares to employees and nonemployees with vesting restrictions was $19,000 and $0.5 million, respectively, for the year ended December 31, 2015. The expense

related to the Common Shares transferred from the pool of Founder's Shares to employees and nonemployees with vesting restrictions was $0 and $0.3 million, respectively, for the six months ended June 30, 2015 and $19,000 and $0.3 million, respectively, for the six months ended June 30, 2016.

As of December 31, 2015 and June 30, 2016, the Company had unrecognized equity-based compensation expense related to the Common Shares transferred from the pool of Founder's Shares to employees and nonemployees with vesting restrictions of $0.1 million and $1.3 million and $0.1 million and $1.5 million, respectively. The total unrecognized compensation cost for the awards is adjusted for future forfeitures. As of December 31, 2015 and June 30, 2016, the Company expected to recognize total unrecognized compensation cost over a remaining weighted-average period of 2.3 years and 1.8 years, respectively. The fair value of nonemployee shares vested during the years ended December 31, 2014 and 2015, and the six months ended June 30, 2016, based on estimated fair values of the shares underlying the restricted share awards on the day of vesting, was $0.3 million, $0.6 million and $0.3 million, respectively. The fair value of employee shares vested during the years ended December 31, 2014 and 2015, and the six months ended June 30, 2016, based on estimated fair values of the shares underlying the restricted share awards on the day of vesting, was $0, $0.1 million and $0.1 million, respectively.

TRACR Awards

Prior to the share exchange transaction with the Company in March 2015, upon approval of the TRACR Board of Directors, certain employee and non-employee advisors of TRACR were granted TRACR ordinary shares, restricted ordinary shares and certain subscription rights to ordinary shares of TRACR. These restricted shares were subject to certain transfer restrictions and repurchase rights.

The expense related to equity-based compensation awards granted to employees and non-employees advisors by the TRACR prior to the share exchange transaction was $0.2 million, $0.2 million, $0.2 million and $0, respectively, for the years ended December 31, 2014 and 2015 and the six months ended June 30, 2015 and 2016.

In March 2015, pursuant to the share exchange transaction with the Company, holders of TRACR ordinary shares, restricted ordinary shares and certain subscription rights to ordinary shares were granted replacement awards of Common Shares, restricted share awards and subscription rights to Common Shares in exchange for TRACR ordinary shares held and subscription rights for TRACR shares. Pursuant to the share exchange transaction, the Company issued 852,846 Common Shares to the founders of TRACR, 656,031 restricted shares to employee and non-employee advisors, and 459,217 Common Shares to Fay Corp.

The Company recorded the incremental fair value associated with the fully vested portion of the replacement awards immediately upon issuance to the holder as this portion was attributable to services performed prior to the share exchange. The expense related to the fully vested portion of the replacement awards was $0.9 million for the year ended December 31, 2015. The Company recorded the fair value of the unvested portion of replacement awards of restricted share awards granted pursuant to the share exchange transaction over the associated service period as described in restricted stock awards above.

Fay Corp. Awards

In April 2014, in conjunction with the sale of its Series A-2 Preferred Shares, the founders and an investor transferred 1,192,585 Common Shares to Fay Corp. for the purpose of future issuances of equity-compensation awards to employees and nonemployee advisors. In March 2015, pursuant to the share exchange transaction between TRACR and the Company, the Company issued 459,217 Common Shares to Fay Corp. for certain TRACR subscription rights that were outstanding as of the exchange date. In June 2016, Fay Corp. transferred 274,140 Common Shares to the Company. These Common Shares are reflected as Treasury Shares on the consolidated balance sheet as of June 30, 2016 at cost. In June 2016, Fay Corp. assigned all of its repurchase rights to previously issued restricted Common Shares to the Company. In July 2016, Fay Corp. transferred the remaining Common

Shares held by Fay Corp. to the Company in conjunction with the share split, see Note 17. A summary of the status of and changes in Common Shares held by Fay Corp. as of December 31, 2014 and 2015, and June 30, 2016 is as follows:

	Shares	Weighted-Average Grant Date Fair Value per Share
Common Shares outstanding held by Fay Corp as of December 31, 2013	—	
Common Shares issued to Fay Corp	1,192,585	
Common Shares outstanding held by Fay Corp as of December 31, 2014	1,192,585	
Common Shares issued to Fay Corp	459,217	
Common Shares transferred from Fay Corp	(759,204)	$ 3.91
Common Shares outstanding held by Fay Corp as of December 31, 2015	892,598	
Common Shares issued to Fay Corp (unaudited)	—	
Common Shares transferred from Fay Corp (unaudited)	(618,414)	
Common Shares repurchased by the Company from Fay Corp (unaudited)	(274,140)	
Common Shares outstanding held by Fay Corp as of June 30, 2016 (unaudited)	44	

During the year ended December 31, 2015, Fay Corp. transferred a total of 759,204 Common Shares, subject to certain vesting conditions, to three employees of the Company. During the six months ended June 30, 2016, Fay Corp. transferred a total of 618,414 Common Shares to two non-employee directors, one employee and a nonemployee advisor.

In September 2015, Fay Corp. transferred 450,000 Common Shares to one employee of the Company of which 400,000 Common Shares are subject to service-based vesting conditions and 50,000 Common Shares are subject to performance-based vesting conditions. Unvested Common Shares may be repurchased in certain circumstances from the holder upon termination of the holder's service relationship with the Company. Both vested and unvested shares are subject to repurchase at the original purchase price upon certain triggering events such as termination for cause, material breach of agreement and insolvency of the holder. As of December 31, 2015, none of the 50,000 Common Shares with performance-based vesting conditions were vested, however, 15,000 Common Shares were deemed probable of vesting. As of June 30, 2016, 15,000 Common Shares with performance-based vesting conditions were vested.

In September 2015, Fay Corp. transferred 309,204 Common Shares, of which 131,203 Common Shares were transferred pursuant to the TRACR share exchange transaction, to two employees of the Company. The Common Shares are subject to service-based vesting conditions and unvested Common Shares may be repurchased in certain circumstances from the holder upon termination of the holder's service relationship with the Company. Both vested and unvested shares are subject to repurchase at the original purchase price upon certain triggering events such as termination for cause, material breach of agreement and insolvency of the holder.

In May 2016, Fay Corp. transferred 328,014 shares of fully vested Common Shares to two nonemployee directors pursuant to the share exchange transaction with TRACR in March 2015.

In June 2016, the Company and Fay Corp. transferred 290,400 Common shares to a Founder, 268,093 of which are subject to vesting terms. The unvested Common Shares are subject to repurchase by the Company upon termination of the holder's service relationship with the Company as well as upon certain triggering events such as termination for cause, material breach of agreement and insolvency of the holder. As of June 30, 2016, 167,493 Common Shares had vested and 122,907 Common Shares were unvested.

The expense related to the Common Shares transferred to the Founder was $2.2 million for the six months ended June 30, 2016. As of June 30, 2016, the Company had unrecognized equity-based compensation expense of $1.5 million related to this award which is expected to be recognized over a remaining weighted-average service period of 1.8 years. The fair value of the shares vested during the six months ended June 30, 2016, based on the estimated fair values of the shares underlying the restricted share awards on the day of vesting, was $2.1 million.

A summary of the status of and changes in vesting status of restricted shares transferred from Fay Corp. as of December 31, 2014 and 2015, and June 30, 2016, is as follows:

	Shares	Weighted-Average Grant Date Fair Value per Share
Unvested Common Shares transferred from Fay Corp. as of December 31, 2014		
Transferred	759,204	$ 3.91
Vested	(171,527)	$ 3.91
Unvested Common Shares transferred from Fay Corp. as of December 31, 2015	587,677	$ 3.91
Transferred from pool of Founders Shares (unaudited)	68,232	$ 1.51
Vested (unaudited)	(91,614)	$ 3.83
Unvested Common Shares transferred from Fay Corp. as of June 30, 2016 (unaudited)	564,295	$ 3.63

The Company recorded equity-based compensation expense for the Common Shares issued with vesting restrictions from Fay Corp. to the three employees as the awards represented compensation for services to be performed for the benefit of the Company. As no Common Shares were transferred from Fay Corp. in 2014, there is no expense for the year ended December 31, 2014. The expense related to the Common Shares transferred from Fay Corp. to employees with vesting restrictions was $0.6 million, $0 and $0.3 million for the year ended December 31, 2015 and the six months ended June 30, 2015 and 2016, respectively. The expense related to the Common Shares transferred from Fay Corp. to a nonemployee advisor with vesting restrictions was $0, $0 and $0.1 million for the year ended December 31, 2015, and the six months ended June 30, 2015 and 2016, respectively.

As of December 31, 2015 and June 30, 2016, the Company had unrecognized equity-based compensation expense related to the Common Shares transferred from Fay Corp. to employees with vesting restrictions of $1.8 million and $1.5 million, respectively. As of December 31, 2015 and June 30, 2016, the Company had unrecognized equity-based compensation expense related to Common Shares transferred from Fay Corp. to nonemployees with vesting restrictions of $0 and $0.8 million, respectively. The total unrecognized compensation cost for the awards are adjusted for future forfeitures. As of December 31, 2015 and June 30, 2016, the Company expects to recognize total unrecognized compensation cost over a remaining weighted-average period of 3.0 years and 2.3 years, respectively. The fair value of employee shares vested during the year ended December 31, 2015 and six months ended June 30, 2016, based on estimated fair values of the shares underlying the restricted share awards on the day of vesting, was $0.7 million and $0.6 million, respectively. The fair value of nonemployee shares vested during the year ended December 31, 2015 and the six months ended June 30, 2016, based on estimated fair values of the shares underlying the restricted share awards on the day of vesting, was $0 and $38,000, respectively.

In March 2015, pursuant to the share exchange transaction with the Company, holders of certain subscription rights to ordinary shares of TRACR agreed to exchange these subscription rights for 459,217 Common Shares and restricted Common Shares of the Company to be issued from Fay Corp. following the share exchange. During the year ended December 31, 2015, Fay Corp. had transferred 131,203 Common

Shares pursuant to the TRACR share exchange transaction to two employees. Pursuant to the share exchange transaction, Fay Corp. agreed to transfer 328,014 shares of fully vested Common Shares from Fay Corp. to two nonemployee directors. Accordingly, the Company recorded $0.2 million in equity compensation expense during the year ended December 31, 2015 relating to the subscription rights to Common Shares held by Fay Corp. In May 2016, Fay Corp transferred 328,014 shares of fully vested Common Shares to the two nonemployee directors pursuant to this agreement.

13. Income Taxes

The Company is subject to U.S. federal and various state corporate income taxes as well as taxes in foreign jurisdictions for the foreign parent and where foreign subsidiaries have been established. Loss before provision for income taxes and the provision for income taxes consist of the following (in thousands):

	Year Ended December 31,	
	2014	2015
Domestic	$ —	$ 593
Foreign	(6,863)	(26,414)
Total	$ (6,863)	$ (25,821)
The benefit from (provision for) for income taxes consists of:		
Current		
Federal	$ —	$ (23)
State	—	(12)
Foreign	(11)	(26)
Total Current	(11)	(61)
Deferred:		
Federal	—	(37)
State	—	65
Foreign	74	26
Total Deferred	74	54
Total	$ 63	$ (7)

A reconciliation of the federal statutory corporate income tax rate to the effective income tax rate for the years ended December 31, 2014 and 2015 is as follows:

	Year Ended December 31,	
	2014	2015
Income tax provision at federal statutory rate:	10.3%	10.3%
Increase (decrease) in tax resulting from:		
State Taxes	0.0%	0.1%
Nondeductible expenses	0.0%	0.0%
Foreign rate differential	1.8%	-1.4%
Stock-based compensation	-1.1%	-1.4%
Research credits	0.0%	0.6%
Valuation Allowance	-10.1%	-8.2%
Effective income tax rate	0.9%	0.0%

The federal statutory rate reflects the Switzerland mixed company service rate.

The components of deferred income taxes were as follows as of December 31 (in thousands):

	2014	2015
Deferred tax assets		
Accruals and reserves	$ 40	$ 189
Net operating loss carryforwards	1,396	2,600
Depreciation	1	—
Other deferred tax assets	3	72
Deferred revenue	—	406
Research credit	—	104
Less: valuation allowance	(1,370)	(2,892)
Deferred tax assets	70	479
Deferred tax liabilities		
Depreciation	—	(321)
Intangible assets	(95)	(80)
Other deferred tax liabilities	(4)	(53)
Deferred tax liabilities	(99)	(454)
Long term deferred taxes	$ (29)	$ 25

The Company has a valuation allowance in Switzerland and the UK for TRACR primarily related to net operating loss carryforwards. The Company believes these deferred tax assets do not meet a more likely than not criteria of being realized. Accordingly, the Company has a valuation against these deferred tax assets in these foreign jurisdictions. The valuation allowance increased by $1.5 million during 2015, which is primarily attributable to losses in Switzerland. The Company does not have a valuation allowance against the US deferred tax assets.

As of December 31, 2015, the Company had available foreign net operating loss carryforwards of $26.9 million which begin to expire in 2020. The Company has Federal and state research and development credit carryforwards of $0.1 million and $0.1 million, respectively. The Federal and state research credits begin to expire in 2035.

ASC 740 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements by prescribing a minimum recognition threshold and measurement of a tax position taken or expected to be taken in a tax return.

The aggregate changes in gross unrecognized tax benefits during the years ended December 31, 2014 and 2015 were as follows (in thousands):

	Year Ended December 31,	
	2014	2015
Balance at beginning of year	$ —	$ —
Increases for tax positions taken during current period	—	49
Increases for tax positions taken in prior periods	—	—
Increases for acquired tax positions taken in prior period	—	—
Decreases for acquired tax positions within measurement window	—	—
Decreases for tax positions taken in prior periods	—	—
Decreases for lapse in statutes	—	—
Balance at end of year	$ —	$ 49

As of December 31, 2014 and December 31, 2015, the Company had gross unrecognized tax benefits of $0.1 million of which the entire amount, if recognized, would favorably impact the effective tax rate. The Company classifies interest and penalties related to income taxes as a component of its provision for income taxes, and the amount of interest and penalties recorded as of December 31, 2014 and 2015 in the statements of operations and balance sheet was immaterial. The Company does not expect any material changes in the amounts of unrecognized tax benefits over the next 12 months.

During the six months ended June 30, 2016 and June 30, 2015, the Company recorded an income tax provision of $0.1 million and an income tax benefit of $0.2 million, respectively, representing an effective tax rate of -0.3% and 2.9%, respectively. The income tax provision (benefit) is primarily attributable to the year-to-date pre-tax income (losses) earned by the Company's U.S. and U.K. subsidiaries. The difference in the statutory tax rate and effective tax rate is primarily a result of the jurisdictional mix of earnings and losses that are not benefitted. The Company maintains a partial valuation allowance against certain deferred tax assets for its subsidiaries in the UK and a full valuation allowance against its Swiss net deferred tax assets that are not more-likely-than-not realizable. As a result, the Company has not recognized a tax benefit related to the Swiss losses generated in the current periods.

The Company files income tax returns in the U.S. federal jurisdiction, Massachusetts, and foreign jurisdictions. The Company is subject to U.S federal, Massachusetts, and foreign income tax examinations by tax authorities for all years.

14. Net loss Per Share Attributable to Common Shareholders

As described in Note 2 the Company computes basic and diluted earnings (loss) per share using a methodology that gives effect to the impact of outstanding participating securities (the "two-class method"). As the years ended December 31, 2014 and 2015, and six months ended June 30, 2015 and 2016, resulted in net losses, there is no income allocation required under the two-class method or dilution attributed to weighted average shares outstanding in the calculation of diluted loss per share.

Basic and diluted net loss per common share are calculated as follows (in thousands, except share and per share data):

	Year Ended December 31,		Six Months Ended June 30,	
	2014	2015	2015 (Unaudited)	2016 (Unaudited)
Numerator:				
Net loss	$ (6,800)	$ (25,828)	$ (7,188)	$ (25,606)
Loss attributable to noncontrolling interest	536	325	308	10
Loss on extinguishment of redeemable convertible preferred shares	(745)	—	—	—
Net loss attributable to common stockholders—basic and diluted	$ (7,009)	$ (25,503)	$ (6,880)	$ (25,596)
Denominator:				
Weighted-average common shares used in net loss per share attributable to common stockholders—basic and diluted	3,559,985	5,037,404	4,538,595	5,488,467
Net loss per share attributable to common stockholders—basic and diluted	$ (1.97)	$ (5.06)	$ (1.52)	$ (4.66)

The following Common Share equivalents, presented on an as converted basis, were excluded from the calculation of net loss per share for the periods presented, due to their anti-dilutive effect (in thousands):

	Year Ended December 31,		Six Months Ended June 30,	
	2014	2015	2015 (unaudited)	2016 (unaudited)
Convertible preferred shares	3,560,002	18,837,024	3,560,002	27,135,884
Conversion of convertible loans	—	4,110,987	—	—
Dr. Emmanuelle Charpentier call option	—	328,017	328,017	328,017
Outstanding options	—	1,939,986	—	2,709,572
Unvested unissued restricted shares	—	142,794	—	—
Unvested issued restricted shares	—	—	—	134,047
	3,560,002	25,358,808	3,888,019	30,307,520

15. Related Party Transactions

In connection with the Series A-3 Preferred Share financing, the Company paid $0.2 million on behalf of investors for legal and consulting costs incurred for the preparation and completion of the transaction.

The Company is a party to intellectual property license agreements with Dr. Emmanuelle Charpentier. In addition, Dr. Charpentier is a consultant to the Company and holds a 17.9% noncontrolling interest in TRACR. During the years ended December 31, 2014 and 2015, and six months ended June 30, 2015 and 2016, the Company paid Dr. Charpentier a total of $0.1 million, $34,000, $17,000 and $1.0 million, respectively, in consulting, licensing and other fees. As of December 31, 2015 and June 30, 2016, the Company owed Dr. Charpentier approximately $1.0 million, and $0.3 million, respectively of additional fees primarily related to the Vertex Collaboration Agreement and Bayer Joint Venture Agreement.

During the six months ended June 30, 2016, the Company formed a joint venture with Bayer. As a part of the agreement to form the joint venture, the Company also issued a convertible loan to Bayer, which then immediately converted in Series B Preferred Shares, see Note 9.

16. Subsequent Events

For the purposes of the financial statements as of December 31, 2014, December 31, 2015 and the years then ended, the Company has evaluated the subsequent events through May 13, 2016, the date the audited financial statements were issued and, as it relates to Note 17, through July 26, 2015, the date the revised financial statements were issued. For the purposes of the financial statements as of June 30, 2016 and the period then ended, the Company has evaluated the subsequent events through October 7, 2016, the date the unaudited interim financial statements were issued.

In September 2016, the Company formally offered an aggregate settlement up to $2.0 million to certain U.S common shareholders in order to release the Company from any and all obligations or claims concerning and/or arising out of the Company's status as a PFIC or CFC for any taxable year from 2013 through 2015, including for potential lack of timely notification of the Company's PFIC status for the year ended December 31, 2015, as described in Note 11.

Following the formal settlement offer in September 2016, this settlement has been accepted by substantially all of the U.S. common shareholders representing $1.8 million of the aggregate settlement of $2.0 million. To date, the Company has made payments of $1.8 million under the terms of the accepted settlements.

17. Amendment to Articles of Association

In connection with preparing for its initial public offering, the Company's board of directors and shareholders approved an amendment to the Company's articles of association in July 2016. This amendment became effective upon registration in the Switzerland commercial register on July 27, 2016 and publication in the Swiss Official Gazette of Commerce on August 2, 2016. Pursuant to this amendment a 3 $^{1}/_{3}$-for-one share split was effected. All share and per share amounts in the financial statements and notes thereto have been retrospectively adjusted for all periods presented to give effect to the share split.

4,700,000 Shares

CRISPR Therapeutics AG

Common Shares

PRELIMINARY PROSPECTUS

, 2016

Citigroup
Piper Jaffray
Barclays
Guggenheim Securities

Until , 2016 (25 days after the date of this prospectus), all dealers that buy, sell or trade our common shares, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealer's obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

PART II
INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses, other than the underwriting discounts and commissions, payable by the registrant in connection with the sale of common shares being registered. All amounts are estimates except for the Securities and Exchange Commission, or SEC, registration fee, the Financial Industry Regulatory Authority, or FINRA, filing fee and the NASDAQ Global Market, or NASDAQ, listing fee:

Expenses	Amount
U.S. Securities and Exchange Commission registration fee	$ 10,650
NASDAQ Global Market listing fee	125,000
FINRA filing fee	14,283
Printing and engraving expenses	250,000
Legal fees and expenses	1,714,307
Accounting fees and expenses	1,530,917
Transfer agent fees and expenses	3,500
Miscellaneous costs	101,343
Total	$ 3,750,000

All amounts in the table are estimates except the U.S. Securities and Exchange Commission registration fee, the NASDAQ listing fee and the FINRA filing fee. The Company will pay all of the expenses of this offering.

Item 14. Indemnification of Directors and Officers

Under Swiss law, a corporation may indemnify its directors or officers against losses and expenses (except for such losses and expenses arising from willful misconduct or negligence, although legal scholars advocate that at least gross negligence be required), including attorney's fees, judgments, fines and settlement amounts actually and reasonably incurred in a civil or criminal action, suit or proceeding by reason of having been the representative of, or serving at the request of, the corporation.

Subject to Swiss law, Article 29 of our articles of association provides for indemnification of the existing and former members of our board of directors, executive management, and their heirs, executors and administrators, against liabilities arising in connection with the performance of their duties in such capacity, and permits us to advance the expenses of defending any act, suit or proceeding to members of our board of directors and executive management.

In addition, under general principles of Swiss employment law, an employer may be required to indemnify an employee against losses and expenses incurred by such employee in the proper execution of their duties under the employment agreement with the company.

We intend to enter into indemnification agreements with each of the members of our board of directors and executive officers in the form to be filed as an exhibit to this Registration Statement upon the closing of this offering.

In the underwriting agreement that we enter into in connection with the sale of the common shares being registered hereby, a form of which will be filed as Exhibit 1.1 to this Registration Statement, the underwriters will agree to indemnify, under certain conditions, us, our directors, our officers and persons who control us within the meaning of the Securities Act of 1933, as amended, the Securities Act, against certain liabilities.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Company, the Company has been advised that, in the opinion of the U.S. Securities and Exchange Commission, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

Item 15. Recent Sales of Unregistered Securities

The following sets forth information regarding all unregistered securities sold during the last three fiscal years. Within the last three years, the registrant has issued and sold the following securities:

1. Since October 31, 2013, the registrant issued and sold 3,559,985 common shares for aggregate consideration of CHF 106,800.
2. On November 5, 2013, the registrant issued and sold 440,001 of its Series A-1 Preferred Shares for aggregate consideration of approximately CHF 501,600.
3. On May 6, 2014, the registrant issued and sold 3,120,001 of its Series A-2 Preferred Shares for aggregate consideration of approximately CHF 9.5 million.
4. On April 14, 2015, the registrant issued and sold 10,758,006 of its Series A-3 Preferred Shares for aggregate consideration of approximately $45.7 million.
5. On March 24, 2015, the registrant issued 1,968,095 common shares in exchange for 4,600 ordinary shares of TRACR Hematology Limited and the assignment of certain rights to subscribe for ordinary shares of TRACR Hematology Limited.
6. On May 4, 2015, the registrant issued and sold 4,519,016 of its Series B Preferred Shares for aggregate consideration of approximately CHF 28.0 million.
7. On January 29, 2016, the registrant issued 5,464,608 of its Series B Preferred Shares in connection with the conversion of outstanding convertible loans with aggregate principal and accrued interest of approximately $73.4 million.
8. On June 10, 2016, the registrant issued 2,834,252 of its Series B Preferred Shares for aggregate consideration of approximately $38.1 million.
9. Since April 15, 2015, the registrant issued options to purchase 3,765,927 shares of its common shares to its employees at a weighted-average exercise price of $6.58.

We deemed the offers, sales and issuances of the securities described in paragraphs (1) through (8) above to be exempt from registration under the Securities Act, in reliance on Section 4(a)(2) of the Securities Act, regarding transactions by an issuer not involving a public offering. All purchasers of securities in transactions exempt from registration pursuant to Section 4(a)(2) represented to us that they were acquiring the shares for investment purposes only and not with a view to, or for sale in connection with, any distribution thereof and that they could bear the risks of the investment and could hold the securities for an indefinite period of time. The purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration statement or an available exemption from such registration.

We deemed the issuances of our common stock and options to purchase common stock in paragraph (9) to be exempt from registration under the Securities Act either in reliance on Rule 701 of the Securities Act as offers and sales of securities under compensatory benefit plans and contracts relating to compensation in compliance with Rule 701, or in reliance on Section 4(a)(2), as transactions by an issuer not involving a public offering. Each of the recipients of securities in any transaction exempt from registration either received or had adequate access, through employment, business or other relationships, to information about us.

There were no underwritten offerings employed in connection with any of the transactions set forth above.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits. See the Exhibit Index attached to this Registration Statement, which is incorporated by reference herein.

(b) Financial Statement Schedules. Schedules not listed above have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings.

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

1. For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this Registration Statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this Registration Statement as of the time it was declared effective.
2. For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-1 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Basel, Switzerland on October 7, 2016.

CRISPR THERAPEUTICS AG

By: /s/ Rodger Novak
Name: Rodger Novak, M.D.
Title: Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons on the date indicated below in the capacities indicated:

Signature	Title	Date
/s/ Rodger Novak Rodger Novak, M.D.	Chief Executive Officer (principal executive officer)	October 7, 2016
/s/ Marc A. Becker Marc A. Becker	Chief Financial Officer (principal financial officer and principal accounting officer)	October 7, 2016
* N. Anthony Coles, M.D.	Chairman and Director	October 7, 2016
* Ali Behbahani, M.D.	Director	October 7, 2016
* Bradley Bolzon, Ph.D.	Director	October 7, 2016
* Simeon J. George, M.D.	Director	October 7, 2016
* Kurt von Emster	Director	October 7, 2016
* Thomas Woiwode, Ph.D.	Director	October 7, 2016
* Pablo Cagnoni, M.D.	Director	October 7, 2016
/s/ Marc A. Becker Marc A. Becker	Authorized Representative in the United States	October 7, 2016

*By: /s/ Marc A. Becker
Marc A. Becker
Attorney-in-fact

EXHIBIT INDEX

The following documents are filed as part of this registration statement:

1.1	Form of Underwriting Agreement
3.1*	Form of Articles of Association
4.1*	Subscription Agreement, dated December 19, 2015, by and between CRISPR Therapeutics AG and Bayer Global Investments B.V.
5.1	Opinion of Vischer AG, Swiss counsel of CRISPR Therapeutics AG, as to the validity of the common shares
8.1	Opinion of Vischer AG, Swiss counsel of CRISPR Therapeutics AG, as to Swiss tax matters
10.1†	Joint Venture Agreement, dated December 19, 2015, between CRISPR Therapeutics AG and Bayer HealthCare LLC
10.2†	IP Contribution Agreement, dated March 16, 2016, by and between CRISPR Therapeutics AG, Bayer HealthCare LLC and Casebia Therapeutics LLP
10.3†	Option Agreement, dated March 16, 2016, by and between CRISPR Therapeutics AG, Bayer HealthCare LLC and Casebia Therapeutics LLP
10.4†	Strategic Collaboration, Option and License Agreement, dated October 26, 2015, by and among CRISPR Therapeutics AG, CRISPR Therapeutics Limited, CRISPR Therapeutics, Inc., TRACR Hematology Limited, Vertex Pharmaceuticals, Incorporated and Vertex Pharmaceuticals (Europe) Limited
10.5†	License Agreement, dated April 15, 2014, by and between CRISPR Therapeutics AG and Emmanuelle Marie Charpentier
10.6†	License Agreement, dated April 15, 2014, by and between TRACR Hematology Limited and Emmanuelle Marie Charpentier
10.7†	Patent Assignment Agreement, dated November 7, 2014, by and between CRISPR Therapeutics AG, Emmanuelle Marie Charpentier, the University of Vienna and Ines Fonfara
10.8	Form of Indemnification Agreement
10.9*	Registration Rights Agreement, dated June 10, 2016, by and among CRISPR Therapeutics AG and certain shareholders
10.10	Employment Agreement, dated October 6, 2016, by and between CRISPR Therapeutics AG and Rodger Novak
10.11	Amended and Restated Employment Agreement, dated October 6, 2016, by and between CRISPR Therapeutics, Inc. and Marc A. Becker
10.12	Employment Agreement, dated October 6, 2016, by and between CRISPR Therapeutics, Inc. and Samarth Kulkarni
10.13	Amended and Restated Employment Agreement, dated October 6, 2016, by and between CRISPR Therapeutics, Inc. and Sven Ante Lundberg
10.14*	CRISPR Therapeutics AG 2015 Stock Option and Grant Plan
10.15*	CRISPR Therapeutics AG 2016 Stock Option and Incentive Plan
10.16*	CRISPR Therapeutics AG 2016 Employee Stock Purchase Plan
10.17*	Consent to Sublease, dated May 16, 2016, by and between CRISPR Therapeutics, Inc and Pfizer Inc.
21.1*	Subsidiaries of the Registrant

23.1	Consent of Ernst & Young LLP
23.2	Consent of Vischer AG, Swiss counsel of CRISPR Therapeutics AG (included in Exhibit 5.1)
23.3	Consent of Vischer AG, Swiss counsel of CRISPR Therapeutics AG (included in Exhibit 8.1)
24.1*	Powers of attorney

* Previously filed.

† Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment and this exhibit has been filed separately with the SEC.

EXHIBIT 1.1

CRISPR THERAPEUTICS AG

_____ Common Shares
(nominal value CHF 0.03 per share)

Underwriting Agreement

New York, New York
[*insert date***]**, 2016

Citigroup Global Markets Inc.
Piper Jaffray & Co.
Barclays Capital Inc.
As Representatives of the several Underwriters,

c/o Citigroup Global Markets Inc.
388 Greenwich Street
New York, New York 10013

Ladies and Gentlemen:

CRISPR Therapeutics AG, a stock corporation (*Aktiengesellschaft*) incorporated under the laws of Switzerland (the "Issuer"), proposes to sell to the several underwriters named in Schedule I hereto (the "Underwriters"), for whom you (the "Representatives") are acting as representatives, **[●]** common shares, nominal value CHF 0.03 per share ("Common Shares"), of the Issuer (said shares to be issued and sold by the Issuer being hereinafter called the "Underwritten Securities"). The Issuer also proposes to grant to the Underwriters an option to purchase up to **[●]** additional Common Shares to cover over-allotments, if any (the "Option Securities;" the Option Securities, together with the Underwritten Securities, hereinafter called the "Securities"). To the extent there are no additional Underwriters listed on Schedule I other than you, the term Representatives as used herein shall mean you, as Underwriters, and the terms Representatives and Underwriters shall mean either the singular or plural as the context requires. As part of the offering contemplated by this Underwriting Agreement, Citigroup Global Markets Inc. has agreed to reserve out of the Securities set forth opposite its name on the Schedule II to this Underwriting Agreement, up to [●] shares, for sale to the Issuer's employees, officers, and directors and other parties associated with the Issuer (collectively, "Participants"), as set forth in the Prospectus under the heading "Underwriting" (the "Directed Share Program"). The Securities to be sold by Citigroup Global Markets Inc. pursuant to the Directed Share Program (the "Directed Shares") will be sold by Citigroup Global Markets Inc. pursuant to this Underwriting Agreement at the public offering price. Any Directed Shares not orally confirmed for purchase by any Participants by [7:30 A.M.] Eastern Standard Time on the business day following the date on which this Underwriting Agreement is executed will be offered to the public by Citigroup Global Markets Inc. as set forth in the Prospectus.

1. Representations and Warranties. The Issuer represents and warrants to, and agrees with, each Underwriter as set forth below:

(a) The Issuer has prepared and filed with the Securities and Exchange Commission (the "SEC") a registration statement (file number 333-213577) on Form S-1 including exhibits and financial statements and any prospectus supplement relating to the Securities that is filed with the SEC pursuant to Rule 424(b) under the Securities Act and deemed part of such registration statement pursuant to Rule 430A under the Securities Act, as amended at the Execution Time and, in the event any post-effective amendment thereto or any registration statement and any amendments thereto filed pursuant to Rule 462(b) under the Securities Act (as defined herein) relating to the offering covered by the Registration Statement (the "Rule 462(b) Registration Statement") becomes effective prior to the First Closing Date, shall also mean such registration statement as so amended or such Rule 462(b) Registration Statement, as the case may be (the "Registration Statement"), including a related preliminary prospectus, for registration under the Securities Act of 1933, as amended, and the rules and regulations of the SEC promulgated thereunder (the "Securities Act") of the offering and sale of the Securities. Such Registration Statement, including any amendments thereto filed prior to the date and time that this agreement (the "Underwriting Agreement") is executed and delivered by the parties hereto (the "Execution Time"), has become effective. The Issuer may have filed one or more amendments thereto, including a related preliminary prospectus relating to the Securities which is used prior to the filing of the Prospectus (the "Preliminary Prospectus"), each of which has previously been furnished to you. The Issuer will file with the SEC a final prospectus relating to the Securities in accordance with Rule 424(b) after the Execution Time (the "Prospectus"). As filed, such Prospectus shall contain all information required by the Securities Act and the rules thereunder and, except to the extent the Representatives shall agree in writing to a modification, shall be in all substantive respects in the form furnished to you prior to the Execution Time or, to the extent not completed at the Execution Time, shall contain only such specific additional information and other changes (beyond that contained in the latest Preliminary Prospectus) as the Issuer has advised you, prior to the Execution Time, will be included or made therein;

(b) On each date and time that the Registration Statement, any post-effective amendment or amendments thereto and any Rule 462(b) Registration Statement became or becomes effective (the "Effective Date"), the Registration Statement did, and when the Prospectus is first filed in accordance with Rule 424(b) under the Securities Act and on the First Closing Date (as defined herein) and on any Option Closing Date (as defined herein), the Prospectus (and any supplement thereto) will, comply in all material respects with the applicable requirements of the Securities Act and the rules thereunder; on the Effective Date and at the Execution Time, the Registration Statement did not and will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary in order to make the statements therein not misleading; and on the date of any filing pursuant to Rule 424(b) and on the First Closing Date and any Option Closing Date, the Prospectus (together with any supplement thereto) will not include any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they

were made, not misleading; provided, however, that the Issuer makes no representations or warranties as to the information contained in or omitted from the Registration Statement, or the Prospectus (or any supplement thereto) in reliance upon and in conformity with information furnished in writing to the Issuer by or on behalf of any Underwriter through the Representatives specifically for inclusion in the Registration Statement or the Prospectus (or any supplement thereto), it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 8(b) hereof;

(c) The Issuer's shareholders held a shareholders' meeting on July 19, 2016, and, at such meeting, its shareholders resolved in the form of a public deed, *inter alia*, to create authorized share capital in the maximum amount of CHF **[●]** by issuing up to **[●]** Common Shares, which will have to be fully paid-in, and to authorize the Board of Directors of the Issuer (the "Board") to execute a capital increase out of such authorized share capital (*Ermächtigungsbeschluss*);

(d) All statutory preemptive rights to which the existing shareholders of the Issuer are entitled under Swiss law with respect to the capital increase described in Section 1(c) have been validly set aside or waived;

(e) Intentionally Omitted.

(f) The "Disclosure Package" shall mean (i) the Preliminary Prospectus that is generally distributed to investors and used to offer the Securities, (ii) any issuer free writing prospectus, as defined in Rule 433 under the Securities Act (the "Issuer Free Writing Prospectuses"), if any, identified in Schedule II hereto, and (iii) any other free writing prospectus, as defined in Rule 405 under the Securities Act (a "Free Writing Prospectus") that the parties hereto shall hereafter expressly agree in writing to treat as part of the Disclosure Package. The (i) Disclosure Package and the price to the public, the number of Underwritten Securities and the number of Option Securities to be included on the cover page of the Prospectus, when taken together as a whole, (ii) each electronic road show, when taken together as a whole with the Disclosure Package and the price to the public, the number of Underwritten Securities and the number of Option Securities to be included on the cover page of the Prospectus, and (iii) any individual Written Testing-the-Waters Communication, when taken together as a whole with the Disclosure Package and the price to the public, the number of Underwritten Securities and the number of Option Securities to be included on the cover page of the Prospectus, does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The preceding sentence does not apply to statements in or omissions from the Disclosure Package based upon and in conformity with written information furnished to the Issuer by any Underwriter through the Representatives specifically for use therein, it being understood and agreed that the only such information furnished by or on behalf of any Underwriter consists of the information described as such in Section 8(b) hereof;

(g) (i) At the time of filing the Registration Statement and (ii) as of the Execution Time (with such date being used as the determination date for purposes of this clause (ii)), the Issuer was not and is not an ineligible issuer, as defined in Rule 405 under the Securities Act (an "Ineligible Issuer"), without taking account of any determination by the SEC pursuant to Rule 405 that it is not necessary that the Issuer be considered an Ineligible Issuer;

(h) From the time of initial confidential submission of the Registration Statement to the SEC (or, if earlier, the first date on which the Issuer engaged directly or through any Person authorized to act on its behalf in any Testing-the-Waters Communication) through the Execution Time, the Issuer has been and is an "emerging growth company," as defined in Section 2(a) of the Securities Act (an "Emerging Growth Company"). "Testing-the-Waters Communication" means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act;

(i) The Issuer (i) has not alone engaged in any Testing-the-Waters Communication other than Testing-the-Waters Communications with the consent of the Representatives with entities that are qualified institutional buyers within the meaning of Rule 144A under the Securities Act or institutions that are accredited investors within the meaning of Rule 501 under the Securities Act and (ii) has not authorized anyone other than the Representatives to engage in Testing-the-Waters Communications. The Issuer reconfirms that the Representatives have been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Issuer has not distributed any Written Testing-the-Waters Communications other than those listed on Schedule III hereto. "Written Testing-the-Waters Communication" means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act;

(j) Each Issuer Free Writing Prospectus does not include any information that conflicts with the information contained in the Registration Statement. The foregoing sentence does not apply to statements in or omissions from any Issuer Free Writing Prospectus based upon and in conformity with written information furnished to the Issuer by any Underwriter through the Representatives specifically for use therein, it being understood and agreed that the only such information furnished by or on behalf of any Underwriter consists of the information described as such in Section 8 hereof;

(k) Each of the Issuer and its subsidiaries has been duly incorporated and is validly existing as a corporation in good standing (to the extent such concept is applicable) under the laws of the jurisdiction in which it is chartered or organized with full corporate power and authority to own or lease, as the case may be, and to operate its properties and conduct its business as described in the Disclosure Package and the Prospectus, and is duly qualified to do business as a foreign corporation and is in good standing under the laws of each jurisdiction which requires such qualification, except where the failure to qualify would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect (as defined below);

(l) All the outstanding shares of capital stock of each subsidiary have been duly and validly authorized and issued and are fully paid and non-assessable (which term means when used herein that no further contributions have to be made by the holders of the capital stock), and, except as otherwise set forth in the Disclosure Package and the Prospectus, all outstanding shares of capital stock of the subsidiaries are owned by the Issuer either directly or through wholly owned subsidiaries free and clear of any perfected security interest or any other security interests, claims, liens or encumbrances;

(m) There is no franchise, contract or other document of a character required to be described in the Registration Statement or Prospectus, or to be filed as an exhibit thereto, which is not described or filed as required (and the Preliminary Prospectus contains in all material respects the same description of the foregoing matters contained in the Prospectus); and the statements in the Preliminary Prospectus and the Prospectus under the headings "Risk Factors—Risks Related to Intellectual Property," "Risk Factors—Risks Related to Our Business, Technology and Industry," "Business—Intellectual Property," "Business—Patent Assignment Agreement," "Business—License Agreements," "Business—Government Regulation," "Business—Legal Proceedings," "Description of Share Capital and Articles of Association," "Comparison of Swiss Law and Delaware Law," "Common Shares Eligible for Future Sale," "Taxation" and "Concurrent Private Placement" insofar as such statements summarize legal matters, agreements, documents or proceedings discussed therein, are accurate and fair summaries of such legal matters, agreements, documents or proceedings;

(n) This Underwriting Agreement has been duly authorized, executed and delivered by the Issuer;

(o) The Issuer is not and, after giving effect to the offering and sale of the Securities and the application of the proceeds thereof as described in the Disclosure Package and the Prospectus, will not be an "investment company" as defined in the Investment Company Act of 1940, as amended;

(p) No consent, approval, authorization, filing with or order of any court or governmental agency or body is required in connection with the transactions contemplated herein, except (i) such as have been obtained under the Securities Act; (ii) such as are required by the listing rules of the NASDAQ Global Market; (iii) such as are required by the applicable rules of the Financial Industry Regulatory Authority; and (iv) such as may be required under the blue sky laws of any jurisdiction in connection with the purchase and distribution of the Securities by the Underwriters in the manner contemplated herein and in the Disclosure Package and the Prospectus;

(q) Neither the issue and sale of the Securities nor the consummation of any other of the transactions herein contemplated nor the fulfillment of the terms hereof will conflict with, result in a breach or violation of, or imposition of any lien, charge or encumbrance upon any property or assets of the Issuer or any of its subsidiaries pursuant to, (i) the Articles of Association of the Issuer or any of its subsidiaries, (ii) the terms of any indenture, contract, lease, mortgage, deed of trust, note agreement, loan agreement or other agreement, obligation, condition, covenant or instrument to which the Issuer or any

of its subsidiaries is a party or bound or to which its or their property is subject, or (iii) any statute, law, rule, regulation, judgment, order or decree applicable to the Issuer or any of its subsidiaries of any court, regulatory body, administrative agency, governmental body, arbitrator or other authority having jurisdiction over the Issuer or any of its subsidiaries or any of its or their properties, except in the cases of clauses (ii) and (iii) for such conflict, breach, violation or imposition as would not reasonably be expected to have a Material Adverse Effect;

(r) No holders of securities of the Issuer have rights to the registration of such securities under the Registration Statement, except to the extent such registration rights have been waived in connection with the offering of the Securities;

(s) The consolidated historical financial statements and schedules of the Issuer and its consolidated subsidiaries included in the Preliminary Prospectus, the Prospectus and the Registration Statement present fairly the financial condition, results of operations and cash flows of the Issuer as of the dates and for the periods indicated, comply as to form, in all material respects, with the applicable accounting requirements of the Securities Act and have been prepared in conformity with generally accepted accounting principles applied on a consistent basis throughout the periods involved (except as otherwise noted therein). The selected financial data set forth under the caption "Selected Consolidated Financial Data" in the Preliminary Prospectus, the Prospectus and Registration Statement fairly present, in all material respects, on the basis stated in the Preliminary Prospectus, the Prospectus and the Registration Statement, the information included therein;

(t) No action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Issuer or any of its subsidiaries or its or their property is pending or, to the best knowledge of the Issuer, threatened that (i) would reasonably be expected to have a material adverse effect on the performance of this Underwriting Agreement or the consummation of any of the transactions contemplated hereby or (ii) would reasonably be expected to have a material adverse effect on the condition (financial or otherwise), prospects, earnings, business or properties of the Issuer and its subsidiaries, taken as a whole, whether or not arising from transactions in the ordinary course of business (a "Material Adverse Effect"), except as set forth in or contemplated in the Disclosure Package and the Prospectus (exclusive of any supplement thereto);

(u) Each of the Issuer and each of its subsidiaries owns or leases all such properties as are necessary to the conduct of its operations as presently conducted, except for intellectual property which is separately addressed in subsection (pp) and except as would not reasonably be expected to have a Material Adverse Effect;

(v) Neither the Issuer nor any subsidiary is in violation or default of (i) any provision of its Articles of Association, (ii) the terms of any indenture, contract, lease, mortgage, deed of trust, note agreement, loan agreement or other agreement, obligation, condition, covenant or instrument to which it is a party or bound or to which its property is subject, or (iii) any statute, law, rule, regulation, judgment, order or decree of any

court, regulatory body, administrative agency, governmental body, arbitrator or other authority having jurisdiction over the Issuer or such subsidiary or any of its properties, as applicable, except in the case of clauses (ii) and (iii), for such violation or default as would not reasonably be expected to have a Material Adverse Effect;

(w) Ernst & Young LLP, who have certified certain financial statements of the Issuer and its consolidated subsidiaries and delivered their report with respect to the audited consolidated financial statements and schedules included in the Disclosure Package and the Prospectus, are independent public accountants with respect to the Issuer within the meaning of the Securities Act and the applicable published rules and regulations thereunder;

(x) There are no transfer taxes or other similar fees or charges under Federal law or the laws of any state, or any political subdivision thereof, required to be paid in connection with the execution and delivery of this Underwriting Agreement or the issuance by the Issuer or sale by the Issuer of the Securities, except Swiss issuance stamp duty, which is being paid by the Issuer;

(y) The Issuer has filed all tax returns that are required to be filed or has requested extensions thereof (except in any case in which the failure so to file would not reasonably be expected to have a Material Adverse Effect) and has paid all taxes required to be paid by it and any other assessment, fine or penalty levied against it, to the extent that any of the foregoing is due and payable, except for any such assessment, fine or penalty that is currently being contested in good faith or as would not reasonably be expected to have a Material Adverse Effect;.

(z) No labor problem or dispute with the employees of the Issuer or any of its subsidiaries exists or, to the knowledge of the Issuer, is threatened or imminent, and the Issuer is not aware of any existing or imminent labor disturbance by the employees of any of its or its subsidiaries' principal suppliers, contractors or customers, that would reasonably be expected to have a Material Adverse Effect;

(aa) The Issuer and each of its subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as the Issuer reasonably believes are prudent and customary in the businesses in which they are engaged; all policies of insurance and fidelity or surety bonds insuring the Issuer or any of its subsidiaries or their respective businesses, assets, employees, officers and directors are in full force and effect; the Issuer and its subsidiaries are in compliance with the terms of such policies and instruments in all material respects; and there are no claims by the Issuer or any of its subsidiaries under any such policy or instrument as to which any insurance company is denying liability or defending under a reservation of rights clause; neither the Issuer nor any such subsidiary has been refused any insurance coverage sought or applied for; and neither the Issuer nor any such subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not reasonably be expected to have a Material Adverse Effect;

(bb) No subsidiary of the Issuer is currently prohibited, directly or indirectly, from paying any dividends to the Issuer, from making any other distribution on such subsidiary's capital stock, from repaying to the Issuer any loans or advances to such subsidiary from the Issuer or from transferring any of such subsidiary's property or assets to the Issuer or any other subsidiary of the Issuer, except as described in or contemplated by the Disclosure Package and the Prospectus (exclusive of any supplement thereto);

(cc) The Issuer and its subsidiaries possess all licenses, certificates, permits and other authorizations required to be issued by all applicable authorities necessary to conduct their respective businesses, except where the failure to possess such licenses, certificates, permits and other authorizations would not, singly or in the aggregate, reasonably be expected to have a Material Adverse Effect, and neither the Issuer nor any such subsidiary has received any notice of proceedings relating to the revocation or modification of any such certificate, authorization or permit which, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, would reasonably be expected to have a Material Adverse Effect;

(dd) The Issuer and each of its subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Issuer and its subsidiaries' internal controls over financial reporting are effective at the reasonable assurance level and the Issuer and its subsidiaries are not aware of any material weakness in their internal controls over financial reporting (it being understood that, as of the date hereof, the Issuer is not required to comply with Section 404(b) of the Sarbanes-Oxley Act (as defined below));

(ee) The Issuer and its subsidiaries maintain "disclosure controls and procedures" (as such term is defined in Rule 13a-15(e) under the Securities and Exchange Act 1934, as amended and the rules and regulations of the SEC promulgated thereunder (the "Exchange Act"); such disclosure controls and procedures are effective at the reasonable assurance level;

(ff) The Issuer has not taken, directly or indirectly, without giving effect to activities by the Underwriters, any action designed to or that would constitute or that would reasonably be expected to cause or result in, under the Exchange Act or otherwise, stabilization or manipulation of the price of any security of the Issuer to facilitate the sale or resale of the Securities;

(gg) The Issuer and its subsidiaries are (i) in compliance with any and all applicable foreign, federal, state and local laws and regulations relating to the protection of human health and safety, the environment or hazardous or toxic substances or wastes, pollutants or contaminants ("Environmental Laws"), (ii) have received and are in

compliance with all permits, licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses and (iii) have not received notice of any actual or potential liability under any environmental law, except where such non-compliance with Environmental Laws, failure to receive required permits, licenses or other approvals, or liability would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. Except as set forth in the Disclosure Package and the Prospectus, neither the Issuer nor any of the subsidiaries has been named as a "potentially responsible party" under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended;

(hh) In the ordinary course of its business, the Issuer periodically reviews the effect of Environmental Laws on the business, operations and properties of the Issuer and its subsidiaries, in the course of which it identifies and evaluates associated costs and liabilities (including, without limitation, any capital or operating expenditures required for clean-up, closure of properties or compliance with Environmental Laws, or any permit, license or approval, any related constraints on operating activities and any potential liabilities to third parties). On the basis of such review, the Issuer has reasonably concluded that such associated costs and liabilities would not, singly or in the aggregate, reasonably be expected to have a Material Adverse Effect;

(ii) None of the following events has occurred or exists: (i) a failure to fulfill the obligations, if any, under the minimum funding standards of Section 302 of the United States Employee Retirement Income Security Act of 1974, as amended ("ERISA"), and the regulations and published interpretations thereunder with respect to a Plan, determined without regard to any waiver of such obligations or extension of any amortization period; (ii) an audit or investigation by the Internal Revenue Service, the U.S. Department of Labor, the Pension Benefit Guaranty Corporation or any other federal or state governmental agency or any foreign regulatory agency with respect to the employment or compensation of employees by any of the Issuer or any of its subsidiaries that would reasonably be expected to have a Material Adverse Effect; (iii) any breach of any contractual obligation, or any violation of law or applicable qualification standards, with respect to the employment or compensation of employees by the Issuer or any of its subsidiaries that would reasonably be expected to have a Material Adverse Effect. None of the following events has occurred or is reasonably likely to occur: (i) a material increase in the aggregate amount of contributions required to be made to all Plans in the current fiscal year of the Issuer and its subsidiaries compared to the amount of such contributions made in the most recently completed fiscal year of the Issuer and its subsidiaries; (ii) a material increase in the "accumulated post-retirement benefit obligations" (within the meaning of Statement of Financial Accounting Standards 106) of the Issuer and its subsidiaries compared to the amount of such obligations in the most recently completed fiscal year of the Issuer and its subsidiaries; (iii) any event or condition giving rise to a liability under Title IV of ERISA that would reasonably be expected to have a Material Adverse Effect; or (iv) the filing of a claim by one or more employees or former employees of the Issuer or any of its subsidiaries related to their employment that would reasonably be expected to have a Material Adverse Effect. For purposes of this paragraph, the term "Plan" means a plan (within the meaning of Section

3(3) of ERISA) subject to Title IV of ERISA with respect to which the Issuer or any of its subsidiaries may have any liability;

(jj) There is and has been no failure on the part of the Issuer and any of the Issuer's directors or officers, in their capacities as such, to comply with any provision of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated in connection therewith (the "Sarbanes-Oxley Act") that are in effect and with which the Issuer is required to comply as of the effectiveness of the Registration Statement, including Section 402 relating to loans and Sections 302 and 906 relating to certifications;

(kk) Neither the Issuer nor any of its subsidiaries nor, to the knowledge of the Issuer, any director, officer, agent, employee, affiliate or other person acting on behalf of the Issuer or any of its subsidiaries is aware of or has taken any action, directly or indirectly, that would result in a violation or a sanction for violation by such persons of the Foreign Corrupt Practices Act of 1977 or the U.K. Bribery Act 2010, each as may be amended, or similar law of any other relevant jurisdiction, or the rules or regulations thereunder; and the Issuer and its subsidiaries have instituted and maintain policies and procedures to ensure compliance therewith. No part of the proceeds of the offering will be used, directly or indirectly, in violation of the Foreign Corrupt Practices Act of 1977 or the U.K. Bribery Act 2010, each as may be amended, or similar law of any other relevant jurisdiction, or the rules or regulations thereunder;

(ll) The operations of the Issuer and its subsidiaries are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements and the money laundering statutes and the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "Money Laundering Laws") and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Issuer or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the best knowledge of the Issuer, threatened;

(mm) Neither the Issuer nor any of its subsidiaries nor, to the knowledge of the Issuer, any director, officer, agent, employee or affiliate of the Issuer or any of its subsidiaries (i) is, or is controlled or 50% or more owned in the aggregate by or is acting on behalf of, one or more individuals or entities that are currently the subject of any sanctions administered or enforced by the United States (including any administered or enforced by the Office of Foreign Assets Control of the U.S. Department of the Treasury, the U.S. Department of State or the Bureau of Industry and Security of the U.S. Department of Commerce), the United Nations Security Council, the European Union, a member state of the European Union (including sanctions administered or enforced by Her Majesty's Treasury of the United Kingdom) or other relevant sanctions authority (collectively, "Sanctions" and such persons, "Sanctioned Persons" and each such person, a "Sanctioned Person"), (ii) is located, organized or resident in a country or territory that is, or whose government is, the subject of Sanctions that broadly prohibit dealings with that country or territory (collectively, "Sanctioned Countries" and each, a "Sanctioned Country") or (iii) will, directly or indirectly, use the proceeds of this offering, or lend,

contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other individual or entity in any manner that would result in a violation of any Sanctions by, or would result in the imposition of Sanctions against, any individual or entity (including any individual or entity participating in the offering, whether as underwriter, advisor, investor or otherwise);

(nn) Neither the Issuer nor any of its subsidiaries has engaged in any dealings or transactions with or for the benefit of a Sanctioned Person, or with or in a Sanctioned Country, in the preceding 3 years, nor does the Issuer or any of its subsidiaries have any plans to engage in dealings or transactions with or for the benefit of a Sanctioned Person, or with or in a Sanctioned Country;

(oo) The subsidiaries listed on Annex A attached hereto are the only significant subsidiaries of the Issuer as defined by Rule 1-02 of Regulation S-X (the "Subsidiaries");

(pp) The Issuer and its subsidiaries own, possess, license or have other rights to use all patents, patent applications, trade and service marks, trade and service mark registrations, trade names, copyrights, licenses, inventions, trade secrets, technology, know-how and other intellectual property (collectively, the "Intellectual Property") that are described in the Disclosure Package as being owned by the Company ("Company Intellectual Property") or, to the Company's knowledge and except as described in the Disclosure Package, are necessary for the conduct of the Issuer's business as now conducted or as proposed in the Disclosure Package and Prospectus to be conducted. Except as described in the Disclosure Package, all licenses and other agreements pursuant to which the Issuer grants or is granted any license, covenant not to sue, or other rights, title or interests with respect to the Company Intellectual Property is a valid and binding agreement of the Issuer, is in full force and effect, and is enforceable against the Issuer, and no party is in default under, or in breach or violation of, any such license or agreement. Except as set forth in the Disclosure Package and the Prospectus (a) there are no rights of third parties to any Company Intellectual Property; (b) there is no material infringement by third parties of any Company Intellectual Property; (c) the Issuer and its subsidiaries are not obligated to pay a material royalty, grant a license to, or provide other material consideration to any third party in connection with Company Intellectual Property; (d) there is no pending or threatened action, suit, proceeding or claim by others challenging the validity or scope of any Company Intellectual Property, and the Issuer is unaware of any facts which would form a reasonable basis for any such claim; (e) there is no pending or threatened action, suit, proceeding or claim by others that the Issuer infringes or otherwise violates any patent, trademark, copyright, trade secret or other proprietary rights of others, and the Issuer is unaware of any other fact which would form a reasonable basis for any such claim; (f) all registrations and applications of Company Intellectual Property have been procured and maintained in accordance with applicable administrative and legal requirements, including timely payments of maintenance and other required fees; (g) the Issuer is unaware of any U.S. patent or published U.S. patent application with an allowed claim that is owned by a third party and is unlicensed by the Company, and which contains a claim that would be infringed by the manufacture, use or sale of the gene-editing technology known as and described in the Disclosure Package as CRISPR/Cas9; (h) there is no prior art of which the Issuer is aware that may render any

U.S. patent held by the Issuer invalid or any U.S. patent application held by the Issuer un-patentable which has not been disclosed to the PTO; and (i) the Issuer and its subsidiaries have taken reasonable measures to protect, maintain and safeguard the Company Intellectual Property, including the execution of appropriate nondisclosure and confidentiality agreements;

(qq) Except as described in the Disclosure Package and the Prospectus, and except as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect: (i) the Issuer and its subsidiaries are and have been in compliance with statutes, laws, ordinances, rules and regulations applicable to the Issuer and its subsidiaries, as applicable, for the ownership, research, testing, development, manufacture, packaging, processing, use, labeling, promotion, advertising, storage or disposal of any product manufactured by or on behalf of the Issuer or its subsidiaries (an "Issuer Product"), including, without limitation, the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 301, et seq., the Public Health Service Act, 42 U.S.C. § 262, similar laws of any other federal or state governmental agency or any foreign regulatory agency and the regulations promulgated pursuant to such laws (collectively, "Applicable Laws"); (ii) the Issuer and its subsidiaries possess all licenses, certificates, approvals, applications, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws and/or for the ownership of its properties or the conduct of its business as it relates to an Issuer Product and as described in the Disclosure Package and the Prospectus (collectively, "Authorizations") and such Authorizations are valid and in full force and effect and the Issuer and its subsidiaries are not in violation of any term of any such Authorizations; (iii) neither the Issuer nor its subsidiaries have received any written notice of adverse finding, warning letter or other correspondence or notice from the U.S. Food and Drug Administration ("FDA"), the U.S. National Institutes of Health ("NIH"), or any other federal or state governmental agency or any foreign regulatory agency alleging or asserting noncompliance with any Applicable Laws or Authorizations relating to an Issuer Product; (iv) the Issuer and its subsidiaries have not received written notice of any ongoing claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any federal or state governmental agency or any foreign regulatory agency or third party alleging that any Issuer Product, operation or activity related to an Issuer Product is in violation of any Applicable Laws or Authorizations or has any knowledge that any such federal or state governmental agency or any foreign regulatory agency or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding; (v) the Issuer and its subsidiaries have not received written notice that any federal or state governmental agency or any foreign regulatory agency has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations or has any knowledge that any such federal or state governmental agency or foreign regulatory agency has threatened or is considering such action with respect to an Issuer Product; (vi) the Issuer and its subsidiaries have filed, obtained, maintained or submitted all reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as are required by any Applicable Laws or Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete, correct and not misleading on the date filed (or were corrected or supplemented by a subsequent submission); and (vii) to the Issuer's knowledge, the Issuer, its

subsidiaries, any of their respective directors, officers, employees or agents have not made, or caused the making of, any false statements or representations on, or material omissions from, any submission to, or any other records or documentation prepared or maintained to comply with the requirements of, the FDA or any other federal or state governmental agency or foreign regulatory agency;

(rr) No clinical trials have been conducted by or on behalf of the Issuer or its subsidiaries. The preclinical studies and tests conducted by or on behalf of the Issuer or its subsidiaries have been and, if still pending, are being conducted in all material respects pursuant to all Applicable Laws and Authorizations, as well as any conditions of approval and policies imposed by any applicable institutional review board, any other applicable ethics review board or committee, and any institution at which the preclinical studies and tests have been conducted; the descriptions of the results of such preclinical studies and tests contained in the Disclosure Package and the Prospectus are accurate and complete in all material respects and fairly present the data derived from preclinical studies and tests; except to the extent disclosed in the Disclosure Package and the Prospectus, the Issuer is not aware of any preclinical trials, the results of which the Issuer believes reasonably call into question the research, nonclinical or preclinical study or test results described or referred to in the Disclosure Package and the Prospectus when viewed in the context in which such results are described; and the Issuer, its subsidiaries and, to its knowledge, its Collaborators have not received any written notices or correspondence from any federal or state governmental agency, any foreign regulatory agency, any applicable institutional review board, any other applicable ethics review board or committee or any institution at which the preclinical studies and tests have been conducted requiring the termination, suspension or material modification of any preclinical study or test conducted by, in collaboration with or on behalf of the Issuer or its subsidiaries;

(ss) Except as disclosed in the Registration Statement, the Disclosure Package and the Prospectus, the Issuer (i) does not have any material lending or other relationship with any bank or lending affiliate of the Underwriters and (ii) does not intend to use any of the proceeds from the sale of the Securities hereunder to repay any outstanding debt owed to any affiliate of the Underwriters;

(tt) Neither the Issuer nor any of its subsidiaries nor any of its or their properties or assets has any immunity from the jurisdiction of any court or from any legal process (whether through service or notice, attachment prior to judgment, attachment in aid of execution or otherwise) under the laws of Switzerland;

(uu) Furthermore, the Issuer represents and warrants to Citigroup Global Markets Inc. that (i) the Registration Statement, the Prospectus, any preliminary prospectus and any Issuer Free Writing Prospectuses comply, and any further amendments or supplements thereto will comply, with any applicable laws or regulations of foreign jurisdictions in which the Prospectus or any preliminary prospectus and any Issuer Free Writing Prospectus, as amended or supplemented, if applicable, are distributed in connection with the Directed Share Program, and that (ii) no authorization, approval, consent, license, order, registration or qualification of or with any government,

governmental instrumentality or court, other than such as have been obtained, is necessary under the securities laws and regulations of foreign jurisdictions in which the Directed Shares are offered outside the United States. The Issuer has not offered, or caused the Underwriters to offer, Securities to any person pursuant to the Directed Share Program with the specific intent to unlawfully influence (i) a supplier, contractor or customer of the Issuer to alter the supplier's, contractor's or customer's or supplier's level or type of business with the Issuer, or (ii) a trade journalist or publication to write or publish favorable information about the Issuer or its product candidates; and

(vv) Any certificate signed by any officer of the Issuer and delivered to the Representatives or counsel for the Underwriters in connection with the offering of the Securities shall be deemed a representation and warranty by the Issuer, as to matters covered thereby, to each Underwriter.

2. Purchase, Sale and Delivery of the Securities.

(a) Subject to the terms and conditions and in reliance upon the representations and warranties herein set forth, the Issuer agrees to sell to each Underwriter, and each Underwriter agrees, severally and not jointly, to purchase from the Issuer, at a purchase price of $**[●]** per share, taking into account the pre-funded Underwritten Capital Increase Amount, the amount of the Underwritten Securities set forth opposite such Underwriter's name in Schedule I hereto.

(b) Delivery of the Underwritten Securities to be purchased by the Underwriters and payment therefor shall be made at the offices of **[●]** (or such other place as may be agreed to by the Issuer and the Representatives) at 10:00 AM, New York City Time, on **[***insert closing date***]**, 2016, or at such time on such later date not more than three Business Days after the foregoing date as the Representatives shall designate, which date and time may be postponed by agreement between the Representatives and the Issuer or as provided in Section 9 hereof (the time and date of such closing are called the "First Closing Date"). For purposes herein, "Business Day" shall mean any day other than a Saturday, a Sunday or a legal holiday or a day on which banking institutions or trust companies are authorized or obligated by law to close in New York, New York or in Basel, Switzerland.

(c) In addition, subject to the terms and conditions and in reliance upon the representations and warranties herein set forth, the Issuer hereby grants an option to the several Underwriters to purchase, severally and not jointly, up to **[●]** Option Securities from the Issuer at the same purchase price per share to be paid by the Underwriters for the Underwritten Securities, less an amount per share equal to any dividends or distributions declared by the Issuer and payable on the Underwritten Securities but not payable on the Option Securities. Said option may be exercised only to cover over-allotments in the sale of the Underwritten Securities by the Underwriters. The option granted hereunder may be exercised in whole or in part at any time on or before the 30th day after the date of the Prospectus upon written notice by the Representatives to the Issuer (the date of any such exercise, an "Option Exercise Date"). Such notice shall set forth (i) the aggregate number of Option Securities as to which the Underwriters are exercising the option and (ii) the time, date and place at which the Option Securities will

be delivered (which time and date may be simultaneous with, but not earlier than, the First Closing Date, provided that, if such time and date are simultaneous with the First Closing Date, the option has been exercised before 6:00 a.m. (New York City time) on the third Business Day immediately preceding the First Closing Date; and in the event that such time and date are simultaneous with the First Closing Date, the term "First Closing Date" shall refer to the time and date of delivery of the Underwritten Securities and such Option Securities). Any such time and date of delivery, if subsequent to the First Closing Date, is called an "Option Closing Date," shall be determined by the Representatives and shall not be earlier than three or later than four Business Days after the exercise of said option. The number of Option Securities to be purchased by each Underwriter shall be the same percentage of the total number of shares of the Option Securities to be purchased by the several Underwriters as such Underwriter is purchasing of the Underwritten Securities, subject to such adjustments as you in your absolute discretion shall make to eliminate any fractional shares.

(d) It is understood that the several Underwriters propose to offer the Securities for sale to the public as set forth in the Prospectus.

(e) Payment for the Securities shall be made at the First Closing Date (and, if applicable, at the Option Closing Date) by wire transfer payable in same-day funds to an account specified by the Issuer.

(f) The Issuer shall deliver, or cause to be delivered to the Representatives for the accounts of the several Underwriters the Underwritten Securities at the First Closing Date, against release of a wire transfer of same-day funds for the amount of the purchase price therefor. The Issuer shall also deliver, or cause to be delivered to the Representatives for the accounts of the several Underwriters the Option Securities the Underwriters have agreed to purchase at the First Closing Date or the applicable Option Closing Date, as the case may be, against the release of a wire transfer of same-day funds for the amount of the purchase price therefor. Delivery of the Underwritten Securities and the Option Securities shall be made through the facilities of The Depository Trust Company ("DTC") unless the Representatives shall otherwise instruct. If settlement for the Option Securities occurs after the First Closing Date, the obligation of the Underwriters to purchase the Option Securities shall be conditioned upon receipt of supplemental opinions, certificates and letters confirming as of such date the opinions, certificates and letters delivered on the First Closing Date pursuant to Section 6 hereof.

3. Capital Increase and Initial Subscription.

(a) The Representatives, acting in their own name but for the accounts of the several Underwriters, agree, on the basis of the representations, warranties and agreements herein contained, to:

(i) subscribe, on or by 6.00 a.m. (New York City Time) on the Business Day preceding the day the Board shall pass a capital increase resolution (*Erhöhungsbeschluss*) (the latter date being the "Underwritten Capital Increase Date," which is the second Business Day immediately

preceding the First Closing Date), or such other time and date as agreed between the Issuer and the Representatives, for all of the Underwritten Securities and [NUMBER] Option Securities at the issue price (*Ausgabebetrag*) of CHF 0.03 per Security corresponding to the nominal value of each Security and to deliver the corresponding subscription form (*Zeichnungsschein*) to the Issuer in the form of Exhibit A in original form (wet ink signed) by no later than 6.00 a.m. New York City time on the Underwritten Capital Increase Date; and

(ii) deposit or cause to be deposited, not later than 7:30 a.m. New York City time on the Business Day preceding the Underwritten Capital Increase Date, or such other time and date as agreed between the Issuer and the Representatives, same-day funds in Swiss francs free of bank charges for value in an amount corresponding to the aggregate nominal value of the Underwritten Securities and [NUMBER] Option Securities (the "Underwritten Capital Increase Amount") with UBS AG, Basel, Switzerland (the "Capital Increase Bank"), in a blocked account for such capital increase (*Kapitaleinzahlungskonto*), IBAN: CH66 00233233 193271D7Q, made out to the Issuer's name (the "Underwritten Capital Increase Account"), and to cause the Capital Increase Bank to issue and deliver a written confirmation of payment in original form of the Underwritten Capital Increase Amount to the Issuer no later than 2:30 a.m. New York City time on the Underwritten Capital Increase Date (or such other time and date as agreed between the Issuer and the Representatives).

(b) Upon completion of the items referred to in Section 3(a) and in no event later than 6:00 a.m. New York City time on the Underwritten Capital Increase Date, or such other time and date as agreed between the Issuer and the Representatives, the Board (or a committee or a Board member duly authorized by the Board) will:

(i) pass a capital increase resolution (*Erhöhungsbeschluss*) regarding the issuance of the Underwritten Securities and [NUMBER] Option Securities subscribed for pursuant to Section 3(a)(i) (the "Underwritten Capital Increase");

(ii) adopt a report on the Underwritten Capital Increase (*Kapitalerhöhungsbericht*) and take note of the auditors' report (*Prüfungsbestätigung*), all in accordance with Swiss statutory law;

(iii) resolve on the Underwritten Capital Increase and make all amendments to the articles of association of the Issuer necessary in connection with the Underwritten Capital Increase (*Feststellungs- und Statutenänderungsbeschluss*); and

(iv) file the documents necessary for the registration of the Underwritten Capital Increase with the Commercial Register of the Canton of Basel-Stadt;

provided, *however*, that if this Underwriting Agreement is terminated pursuant to Section 10 prior to the Issuer filing the relevant resolutions with the Commercial Register of the Canton of Basel-Stadt, (a) the Issuer undertakes not to resolve on the Underwritten Capital Increase (if it has not already done so) or to file the relevant resolutions with the Commercial Register of the Canton of Basel-Stadt, and (b) the Issuer shall immediately cause the Capital Increase Bank to release the Underwritten Capital Increase Amount in full to the Representatives, acting for the accounts of the several Underwriters, as soon as practicable; and the Underwriters understand that the Capital Increase Bank may require confirmation, including from the Underwriters, to release the Underwritten Capital Increase Amount and the Underwriters agree to deliver such confirmation.

(c) Immediately after the registration of the Underwritten Capital Increase in the Commercial Register of the Canton of Basel-Stadt pursuant to Section 3(b), but in no event later than 6:00 a.m. New York City time on the Business Day following the Underwritten Capital Increase Date, the Issuer will:

(i) deliver to each of the Representatives, the Capital Increase Bank and the share registrar of the Issuer, (a) a copy of the certified excerpt of the journal entry (*Tagebuch*) or a copy of the certified excerpt from the Commercial Register of the Canton of Basel-Stadt evidencing the Underwritten Capital Increase, (b) a copy of the certified updated articles of association of the Issuer evidencing the Underwritten Capital Increase, (c) a copy of the Issuer's book of uncertificated securities (*Wertrechtebuch*) evidencing the Underwriters as first holders of the Underwritten Securities, and (d) a copy of the share register (*Aktienbuch*) of the Issuer evidencing the Underwriters as shareholders with respect to the Underwritten Securities; and

(ii) take all steps necessary to ensure that the Underwritten Securities will be (a) duly recorded in an account of the Underwriters at DTC on the First Closing Date; and (b) freely transferable (subject to any applicable restrictions set forth in the articles of association of the Issuer) on the First Closing Date.

(d) The funds deposited in the Underwritten Capital Increase Account, shall, upon registration of the Underwritten Capital Increase pursuant to Section 3(b) and upon request by the Representatives, be transferred to a separate account of the Issuer with **[●]** and shall, in such case, remain so deposited for the account of the Issuer until the earlier of:

(i) the issuance of the Underwritten Securities to the Underwriters as set forth in Section 3(c) on the First Closing Date; and

(ii) the date of receipt by the Representatives on behalf of the several Underwriters of the proceeds of (A) the sale of the Underwritten

Securities as set forth in Sections 11(b), 11(c) or 11(e) or (B) the Capital Reduction as set forth in Section 11(d), as the case may be.

Any fees payable to the Capital Increase Bank for any transfer of the funds deposited in the Underwritten Capital Increase Account pursuant to this Section 3(d) shall be payable directly to the Capital Increase Bank by the Issuer.

4. Subscription and Issuance of Option Securities.

(a) The Representatives, acting in their own name but for the accounts of the several Underwriters, agree, on the basis of the representations, warranties and agreements herein contained, and subject to the conditions stated below and to this Agreement having not been terminated, to:

(i) acquire for nominal value from the Company all of the Option Securities for which the option to purchase can be exercised pursuant to Section 2(c) (the "Applicable Option Securities") at the issue price (*Ausgabebetrag*) of CHF 0.03 per Applicable Option Security corresponding to the nominal value of each Applicable Option Security issued as Option Security at the Underwritten Capital Increase.

(b) In no event later than 6:00 a.m. New York City time on the Business Day following the Underwritten Capital Increase, the Issuer will:

(i) deliver to each of the Representatives, the Capital Increase Bank and the share registrar of the Issuer, (a) a copy of the certified excerpt of the journal entry (*Tagebuch*) or a copy of the certified excerpt from the Commercial Register of the Canton of Basel-Stadt evidencing the Underwritten Increase, (b) a copy of the certified updated articles of association of the Issuer evidencing the Underwritten Increase, (c) a copy of the Issuer's book of uncertificated securities (*Wertrechtebuch*) evidencing the Underwriters as first holders of the Applicable Option Securities, and (d) a copy of the share register (*Aktienbuch*) of the Issuer evidencing the Underwriters as shareholders with respect to the Applicable Option Securities; and

(ii) take all steps necessary to ensure that the Applicable Option Securities will be (a) duly recorded in an account of the Underwriters at DTC on the Option Closing Date, and (b) freely transferable (subject to any applicable restrictions set forth in the articles of association of the Issuer) on the Option Closing Date.

(c) The funds, deposited in the Underwritten Capital Increase Account shall, upon registration of the Underwritten Capital Increase pursuant to Section 3(b) and upon request by the Representatives, be transferred to a separate account of the Issuer with **[●]** and shall, in such case, remain so deposited, without interest, for the account of the Issuer until the earlier of:

(i) the issuance of the Applicable Option Securities to the Underwriters as set forth in Section 4(b) on the Option Closing Date; and

(ii) the date of receipt by the Representatives on behalf of the several Underwriters of the proceeds of (A) the sale of the Applicable Option Securities as set forth in Sections 11(b), 11(c) or 11(e) or (B) the Capital Reduction as set forth in Section 11(d), as the case may be.

Any fees payable to the Capital Increase Bank for any transfer of the funds deposited in the Underwritten Increase Account pursuant to this Section (c) shall be payable directly to the Capital Increase Bank by the Issuer.

5. Agreements. The Issuer agrees with the several Underwriters that:

(a) Prior to the termination of the offering of the Securities, the Issuer will not file any amendment of the Registration Statement or supplement to the Prospectus or any Rule 462(b) Registration Statement unless the Issuer has furnished you a copy for your review prior to filing and will not file any such proposed amendment or supplement to which you reasonably object. The Issuer will cause the Prospectus, properly completed, and any supplement thereto to be filed in a form approved by the Representatives with the SEC pursuant to the applicable paragraph of Rule 424(b) under the Securities Act within the time period prescribed and will provide evidence satisfactory to the Representatives of such timely filing. The Issuer will promptly advise the Representatives (i) when the Prospectus, and any supplement thereto, shall have been filed (if required) with the SEC pursuant to Rule 424(b) or when any Rule 462(b) Registration Statement shall have been filed with the SEC, (ii) when, prior to termination of the offering of the Securities, any amendment to the Registration Statement shall have been filed or become effective, (iii) of any request by the SEC or its staff for any amendment of the Registration Statement, or any Rule 462(b) Registration Statement, or for any supplement to the Prospectus or for any additional information, (iv) of the issuance by the SEC of any stop order suspending the effectiveness of the Registration Statement or of any notice objecting to its use or the institution or threatening of any proceeding for that purpose and (v) of the receipt by the Issuer of any notification with respect to the suspension of the qualification of the Securities for sale in any jurisdiction or the institution or threatening of any proceeding for such purpose. The Issuer will use its reasonable best efforts to prevent the issuance of any such stop order or the occurrence of any such suspension or objection to the use of the Registration Statement and, upon such issuance, occurrence or notice of objection, to obtain as soon as possible the withdrawal of such stop order or relief from such occurrence or objection, including, if necessary, by filing an amendment to the Registration Statement or a new registration statement and using its reasonable best efforts to have such amendment or new registration statement declared effective as soon as practicable;

(b) If, at any time prior to the filing of the Prospectus pursuant to Rule 424(b) under the Securities Act, any event occurs as a result of which the Disclosure Package would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein in the light of the circumstances under

which they were made at such time not misleading, the Issuer will (i) notify promptly the Representatives so that any use of the Disclosure Package may cease until it is amended or supplemented; (ii) amend or supplement the Disclosure Package to correct such statement or omission; and (iii) supply any amendment or supplement to you in such quantities as you may reasonably request;

(c) If, at any time when a prospectus relating to the Securities is required to be delivered under the Securities Act (including in circumstances where such requirement may be satisfied pursuant to Rule 172), any event occurs as a result of which the Prospectus as then supplemented would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein in the light of the circumstances under which they were made or the circumstances then prevailing not misleading, or if it shall be necessary to amend the Registration Statement or supplement the Prospectus to comply with the Securities Act or the rules thereunder, the Issuer promptly will (i) notify the Representatives of any such event; (ii) prepare and file with the SEC, subject to the second sentence of paragraph (a) of this Section 5, an amendment or supplement which will correct such statement or omission or effect such compliance; and (iii) supply any supplemented Prospectus to you in such quantities as you may reasonably request;

(d) As soon as practicable, the Issuer will make generally available to its security holders and to the Representatives an earnings statement or statements of the Issuer and its subsidiaries which will satisfy the provisions of Section 11(a) of and Rule 158 under the Securities Act;

(e) The Issuer will furnish to the Representatives and counsel for the Underwriters, without charge, copies of the Registration Statement with conformed signatures (including exhibits thereto) and to each other Underwriter a conformed copy of the Registration Statement (without exhibits thereto) and, so long as delivery of a prospectus by an Underwriter or dealer may be required by the Securities Act (including in circumstances where such requirement may be satisfied pursuant to Rule 172), as many copies of each Preliminary Prospectus, the Prospectus and each Issuer Free Writing Prospectus and any supplement thereto as the Representatives may reasonably request. The Issuer will pay the expenses of printing or other production of all documents relating to the offering;

(f) The Issuer will use its reasonable best efforts to arrange, if necessary, for the qualification of the Securities for sale under the laws of such jurisdictions as the Representatives may reasonably designate and will use its reasonable best efforts to maintain such qualifications in effect so long as required for the distribution of the Securities; provided that in no event shall the Issuer be obligated to qualify to do business in any jurisdiction where it is not now so qualified or to take any action that would subject it to service of process in suits, other than those arising out of the offering or sale of the Securities, in any jurisdiction where it is not now so subject.

(g) The Issuer will not, without the prior written consent of each of the Representatives, offer, sell, contract to sell, pledge, or otherwise dispose of, (or enter into

any transaction which is designed to, or might reasonably be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise) by the Issuer or any affiliate of the Issuer or any person in privity with the Issuer or any affiliate of the Issuer) directly or indirectly, including the filing (or participation in the filing) of a registration statement with the SEC in respect of, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act, any other Common Shares or any securities convertible into, or exercisable, or exchangeable for, Common Shares; or publicly announce an intention to effect any such transaction, for a period of 180 days after the date of the Underwriting Agreement, provided, however, that the Issuer may (i) issue and sell Common Shares pursuant to any employee stock option or incentive plan, stock ownership or purchase plan or dividend reinvestment plan of the Issuer in effect at the Execution Time, (ii) issue, or agree to issue, any Common Shares or any security convertible into or exercisable for Common Shares in connection with any joint ventures, marketing or distribution arrangements, collaboration agreements or intellectual property license agreements, (iii) issue, or agree to issue, any Common Shares or any security convertible into or exercisable for Common Shares in connection with the acquisition by the Issuer or its subsidiaries of not less than a majority or controlling portion of the securities, business, property or other assets of another person or entity or pursuant to an employee benefit plan assumed by the Issuer in connection with such acquisition, (iv) issue and sell $35,000,000 of Common Shares to Bayer Global Investments B.V. concurrently with the offering of Securities in a private placement at a price per share equal to the purchase price set forth herein, (v) issue 328,017 Common Shares to Dr. Emmanuelle Charpentier immediately prior to the First Closing Date pursuant to a call option agreement, dated March 20, 2015, between the Company and Dr. Emmanuelle Charpentier; and (vi) issue and sell any Common Shares or any security convertible into Common Shares to satisfy indemnification claims under any preferred stock investment agreement disclosed in the Registration Statement; provided further that in the case of clauses (ii) and (iii) the aggregate number of Common Shares that the Issuer may sell or issue shall not exceed 5% of the Common Shares issued and outstanding immediately following the transactions contemplated by this Agreement;

(h) If Citigroup Global Markets Inc. and Piper Jaffray & Co., in their sole discretion, agree to release or waive the restrictions set forth in a lock-up letter described in Section 6(l) hereof for an officer or director of the Issuer and provides the Issuer with notice of the impending release or waiver at least three Business Days before the effective date of the release or waiver, the Issuer agrees to announce the impending release or waiver by a press release substantially in the form of Exhibit C hereto through a major news service at least two Business Days before the effective date of the release or waiver;

(i) The Issuer will not take, directly or indirectly, any action designed to or that would constitute or that might reasonably be expected to cause or result in, under the Exchange Act or otherwise, stabilization or manipulation of the price of any security of the Issuer to facilitate the sale or resale of the Securities;

(j) The Issuer agrees to pay the costs and expenses relating to the following matters: (i) the preparation, printing or reproduction and filing with the SEC of the Registration Statement (including financial statements and exhibits thereto), each Preliminary Prospectus, the Prospectus and each Issuer Free Writing Prospectus, and each amendment or supplement to any of them; (ii) the printing (or reproduction) and delivery (including postage, air freight charges and charges for counting and packaging) of such copies of the Registration Statement, each Preliminary Prospectus, the Prospectus and each Issuer Free Writing Prospectus, and all amendments or supplements to any of them, as may, in each case, be reasonably requested for use in connection with the offering and sale of the Securities; (iii) the preparation, printing, authentication, issuance and delivery of certificates for the Securities, including any stamp or transfer taxes in connection with the original issuance and sale of the Securities; (iv) the printing (or reproduction) and delivery of this Underwriting Agreement, any blue sky memorandum and all other agreements or documents printed (or reproduced) and delivered in connection with the offering of the Securities; (v) the registration of the Securities under the Exchange Act and the listing of the Securities on The NASDAQ Global Market; (vi) any registration or qualification of the Securities for offer and sale under the securities or blue sky laws of the several states (including filing fees and the reasonable fees and expenses of counsel for the Underwriters relating to such registration and qualification); (vii) any filings required to be made with the Financial Industry Regulatory Authority, Inc. ("FINRA") (including filing fees and the reasonable fees and expenses of counsel for the Underwriters relating to such filings, with such fees and expenses of counsel contained in clauses (vi) and (vii) not to exceed $25,000 in the aggregate); (viii) the transportation and other expenses incurred by or on behalf of Issuer representatives in connection with presentations to prospective purchasers of the Securities, provided, however, that the Issuer shall only be responsible for one-half of the cost and expenses of any aircraft chartered in connection with the "road show" for the Securities and the Underwriters shall be responsible for the remaining one-half; (ix) the fees and expenses of the Issuer's accountants and the fees and expenses of counsel (including local and special counsel) for the Issuer; and (x) all other costs and expenses incident to the performance by the Issuer of its obligations hereunder;

(k) The Issuer agrees to pay (i) all fees and disbursements of counsel incurred by the Underwriters in connection with the Directed Share Program, (ii) all costs and expenses incurred by the Underwriters in connection with the printing (or reproduction) and delivery (including postage, air freight charges and charges for counting and packaging) of copies of the Directed Share Program material and (iii) all stamp duties, similar taxes or duties or other taxes, if any, incurred by the Underwriters in connection with the Directed Share Program;

(l) Furthermore, the Issuer covenants with Citigroup Global Markets Inc. that the Issuer will comply with all applicable securities and other applicable laws, rules and regulations in each foreign jurisdiction in which the Directed Shares are offered in connection with the Directed Share Program;

(m) The Issuer agrees that, unless it has or shall have obtained the prior written consent of the Representatives, and each Underwriter, severally and not jointly, agrees

with the Issuer that, unless it has or shall have obtained, as the case may be, the prior written consent of the Issuer, it has not made and will not make any offer relating to the Securities that would constitute an Issuer Free Writing Prospectus or that would otherwise constitute a Free Writing Prospectus required to be filed by the Issuer with the SEC or retained by the Issuer under Rule 433 under the Securities Act; provided that the prior written consent of the parties hereto shall be deemed to have been given in respect of the Free Writing Prospectuses included in Schedule II hereto and any electronic road show. Any such free writing prospectus consented to by the Representatives or the Issuer is hereinafter referred to as a "Permitted Free Writing Prospectus." The Issuer agrees that (x) it has treated and will treat, as the case may be, each Permitted Free Writing Prospectus as an Issuer Free Writing Prospectus and (y) it has complied and will comply, as the case may be, with the requirements of Rules 164 and 433 applicable to any Permitted Free Writing Prospectus, including in respect of timely filing with the SEC, legending and record keeping;

(n) The Issuer will notify promptly the Representatives if the Issuer ceases to be an Emerging Growth Company at any time prior to the later of (a) completion of the distribution of the Securities within the meaning of the Securities Act and (b) completion of the 180-day restricted period referred to in Section 5(g) hereof; and

(o) If at any time following the distribution of any Written Testing-the-Waters Communication, any event occurs as a result of which such Written Testing-the-Waters Communication would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein in the light of the circumstances under which they were made at such time not misleading, the Issuer will (i) notify promptly the Representatives so that use of the Written Testing-the-Waters Communication may cease until it is amended or supplemented; (ii) amend or supplement the Written Testing-the-Waters Communication to correct such statement or omission; and (iii) supply any amendment or supplement to the Representatives in such quantities as may be reasonably requested.

6. Conditions to the Obligations of the Underwriters. The obligations of the Underwriters to purchase the Underwritten Securities and the Option Securities, as the case may be, shall be subject to the accuracy of the representations and warranties on the part of the Issuer contained herein as of the Execution Time, the First Closing Date and any Option Closing Date pursuant to Section 2 hereof, to the accuracy of the statements of the Issuer made in any certificates pursuant to the provisions hereof, to the performance by the Issuer of its obligations hereunder and to the following additional conditions:

(a) The Prospectus, and any supplement thereto, have been filed in the manner and within the time period required by Rule 424(b) under the Securities Act; any material required to be filed by the Issuer pursuant to Rule 433(d) under the Securities Act shall have been filed with the SEC within the applicable time periods prescribed for such filings by Rule 433; and no stop order suspending the effectiveness of the Registration Statement or any notice objecting to its use shall have been issued and no proceedings for that purpose shall have been instituted or threatened;

(b) The Issuer shall have requested and caused Goodwin Procter LLP, U.S. counsel for the Issuer, to have furnished to the Representatives their opinion and negative assurance letter, each dated the First Closing Date and addressed to the Representatives, and each in form and substance reasonably satisfactory to the Representatives.

(c) The Issuer shall have requested and caused Vischer AG, Swiss counsel for the Issuer, to have furnished to the Representatives their opinion, dated the First Closing Date and addressed to the Representatives, in form and substance reasonably satisfactory to the Representatives.

(d) The Representatives shall have received from Ropes & Gray LLP, U.S. counsel for the Underwriters, such opinion or opinions, dated the First Closing Date and addressed to the Representatives, in form and substance reasonably satisfactory to the Representatives, and the Issuer shall have furnished to such counsel any documents they request for the purpose of enabling them to pass their opinion upon any matters agreed with the Representatives;

(e) The Issuer shall have requested and caused Marshall, Gerstein & Borun LLP, intellectual property counsel for the Issuer, to have furnished to the Representatives its intellectual property opinion, dated the First Closing Date and addressed to the Representatives, in form and substance reasonably satisfactory to the Representatives.

(f) The Representatives shall have received from Homburger AG, Swiss counsel for the Underwriters, their opinion, dated the First Closing Date and addressed to the Representatives, in form and substance reasonably satisfactory to the Representatives, and the Issuer shall have furnished to such counsel any documents they request for the purpose of enabling them to pass their opinion upon any matters agreed with the Representatives;

(g) The Issuer shall have furnished to the Representatives a certificate of the Issuer, signed by the Chief Executive Officer or President and the principal financial or accounting officer of the Issuer, dated the First Closing Date to the effect that the signers of such certificate have carefully examined the Registration Statement, the Disclosure Package, the Prospectus and any amendment or supplement thereto, as well as each electronic road show used in connection with the offering of the Securities, and this Underwriting Agreement and that:

(i) the representations and warranties of the Issuer in this Underwriting Agreement are true and correct on and as of the First Closing Date with the same effect as if made on the First Closing Date and the Issuer has complied with all the agreements and satisfied all the conditions on its part to be performed or satisfied at or prior to the First Closing Date;

(ii) no stop order suspending the effectiveness of the Registration Statement or any notice objecting to its use has been issued

and no proceedings for that purpose have been instituted or, to the Issuer's knowledge, threatened; and

(iii) since the date of the most recent financial statements included in the Disclosure Package and the Prospectus (exclusive of any amendment or supplement thereto), there has been no material adverse change in the condition (financial or otherwise), prospects, earnings, business or properties of the Issuer and its subsidiaries, taken as a whole, whether or not arising from transactions in the ordinary course of business, except as set forth in or contemplated in the Disclosure Package and the Prospectus (exclusive of any amendment or supplement thereto).

(h) The Issuer shall have requested and caused Ernst & Young LLP, independent registered public accounting firm for the Issuer, to have furnished to the Representatives at the Execution Time and at the First Closing Date, letters, dated respectively as of the Execution Time and as of the First Closing Date, in form and substance reasonably satisfactory to the Representatives, and confirming that they are independent accountants within the meaning of the Securities Act and the Exchange Act and the applicable rules and regulations adopted by the SEC thereunder and that they have performed a review of the unaudited interim financial information of the Issuer for the six-month period ended June 30, 2016 and as at June 30, 2016, in accordance with Statement on Auditing Standards No. 100.

(i) Subsequent to the Execution Time or, if earlier, the dates as of which information is given in the Registration Statement (exclusive of any amendment thereof) and the Prospectus (exclusive of any amendment or supplement thereto), there shall not have been (i) any change or decrease specified in the letter or letters referred to in paragraph (h) of this Section 6 or (ii) any change, or any development involving a prospective change, in or affecting the condition (financial or otherwise), earnings, business or properties of the Issuer and its subsidiaries taken as a whole, whether or not arising from transactions in the ordinary course of business, except as set forth in or contemplated in the Disclosure Package and the Prospectus (exclusive of any supplement thereto) the effect of which, in any case referred to in clause (i) or (ii) above, is, in the sole judgment of the Representatives, so material and adverse as to make it impractical or inadvisable to proceed with the offering or delivery of the Securities as contemplated by the Registration Statement (exclusive of any amendment thereof), the Disclosure Package and the Prospectus (exclusive of any amendment or supplement thereto).

(j) Prior to the First Closing Date, the Issuer shall have furnished to the Representatives such further information, certificates and documents as the Representatives may reasonably request.

(k) The Securities shall have been listed and admitted and authorized for trading on The NASDAQ Global Market, and satisfactory evidence of such actions shall have been provided to the Representatives.

(l) At the Execution Time, the Issuer shall have furnished to the Representatives a letter substantially in the form of Exhibit B hereto from each officer and director of the Issuer and from the holders of substantially all of the equity securities of the Issuer addressed to the Representatives.

(m) On the First Closing Date, the Subsidiaries shall be subsidiaries of the Issuer as specified in the Prospectus.

If any of the conditions specified in this Section 6 shall not have been fulfilled when and as provided in this Underwriting Agreement, or if any of the opinions and certificates mentioned above or elsewhere in this Underwriting Agreement shall not be reasonably satisfactory in form and substance to the Representatives and counsel for the Underwriters, this Underwriting Agreement and all obligations of the Underwriters hereunder may be canceled at, or at any time prior to, the First Closing Date by the Representatives. Notice of such cancellation shall be given to the Issuer in writing or by telephone or facsimile confirmed in writing.

The documents required to be delivered by this Section 6 shall be delivered at the office of Ropes & Gray LLP, counsel for the Underwriters, at Prudential Tower, 800 Boylston Street, Boston, MA 02199-3600, on the First Closing Date.

7. Reimbursement of Underwriters' Expenses. If the sale of the Securities provided for herein is not consummated because any condition to the obligations of the Underwriters set forth in Section 6 hereof is not satisfied, because of any termination pursuant to Section 10 hereof or because of any refusal, inability or failure on the part of the Issuer to perform any agreement herein or comply with any provision hereof other than by reason of a default by any of the Underwriters, the Issuer will reimburse the Underwriters severally through Citigroup Global Markets Inc. on demand for all out-of-pocket expenses (including reasonable fees and disbursements of counsel) that shall have been reasonably incurred by them in connection with the proposed purchase and sale of the Securities.

8. Indemnification and Contribution.

(a) The Issuer agrees to indemnify and hold harmless each Underwriter, the directors, officers, employees, affiliates and agents of each Underwriter and each person who controls any Underwriter within the meaning of either the Securities Act or the Exchange Act against any and all losses, claims, damages or liabilities, joint or several, to which they or any of them may become subject under the Securities Act, the Exchange Act or other Federal or state statutory law or regulation, at common law or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based (i) upon any untrue statement or alleged untrue statement of a material fact contained in the registration statement for the registration of the Securities as originally filed, or any amendment thereof, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, or (ii) upon any untrue statement or alleged untrue statement of a material fact included in any Preliminary Prospectus, or the Prospectus or any Issuer Free Writing Prospectus, or any Written Testing-the-Waters Communication or in any amendment thereof or supplement thereto

or arise out of or are based upon the omission or alleged omission to state therein a material fact necessary in order to make the statements, in the light of the circumstances under which they were made, not misleading, and agrees to reimburse each such indemnified party, as incurred, for any legal or other expenses reasonably incurred by them in connection with investigating or defending any such loss, claim, damage, liability or action; provided, however, that the Issuer will not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon any such untrue statement or alleged untrue statement or omission or alleged omission made therein in reliance upon and in conformity with information furnished in writing to the Issuer by or on behalf of any Underwriter through the Representatives specifically for inclusion therein. This indemnity agreement will be in addition to any liability which the Issuer may otherwise have.

(b) Each Underwriter severally and not jointly agrees to indemnify and hold harmless the Issuer, each of its directors, each of its officers who signs the Registration Statement, and each person who controls the Issuer within the meaning of either the Securities Act or the Exchange Act, to the same extent as the foregoing indemnity from the Issuer to each Underwriter, but only with reference to written information relating to such Underwriter furnished to the Issuer by or on behalf of such Underwriter through the Representatives specifically for inclusion in the documents referred to in the foregoing indemnity. This indemnity agreement will be in addition to any liability which any Underwriter may otherwise have. The Issuer acknowledges that the statements set forth (i) in the last paragraph of the cover page regarding delivery of the Securities and, under the heading "Underwriting" or "Plan of Distribution", (ii) the list of Underwriters and their respective participation in the sale of the Securities, (iii) the sentences related to concessions and reallowances and (iv) the paragraph related to stabilization, syndicate covering transactions and penalty bids in the Preliminary Prospectus and the Prospectus constitute the only information furnished in writing by or on behalf of the several Underwriters for inclusion in the Preliminary Prospectus, the Prospectus or any Issuer Free Writing Prospectus.

The Issuer agrees to indemnify and hold harmless Citigroup Global Markets Inc., the directors, officers, employees, affiliates and agents of Citigroup Global Markets Inc. and each person, who controls Citigroup Global Markets Inc. within the meaning of either the Securities Act or the Exchange Act ("Citigroup Entities"), from and against any and all losses, claims, damages and liabilities to which they may become subject under the Securities Act, the Exchange Act or other Federal or state statutory law or regulation, at common law or otherwise (including, without limitation, any legal or other expenses reasonably incurred in connection with defending or investigating any such action or claim), insofar as such losses, claims damages or liabilities (or actions in respect thereof) (i) arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in the prospectus wrapper material prepared by or with the consent of the Issuer for distribution in foreign jurisdictions in connection with the Directed Share Program attached to the Prospectus, any preliminary prospectus or any Issuer Free Writing Prospectus, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statement therein, when considered in conjunction with the Prospectus or any

applicable preliminary prospectus, not misleading; (ii) caused by the failure of any Participant to pay for and accept delivery of the securities which immediately following the Effective Date of the Registration Statement, were subject to a properly confirmed agreement to purchase; or (iii) related to, arising out of, or in connection with the Directed Share Program, except that this clause (iii) shall not apply to the extent that such loss, claim, damage or liability is finally judicially determined to have resulted primarily from the gross negligence or willful misconduct of the Citigroup Entities.

(c) Promptly after receipt by an indemnified party under this Section 8 of notice of the commencement of any action, such indemnified party will, if a claim in respect thereof is to be made against the indemnifying party under this Section 8, notify the indemnifying party in writing of the commencement thereof; but the failure so to notify the indemnifying party (i) will not relieve it from liability under paragraph (a) or (b) above unless and to the extent it did not otherwise learn of such action and such failure results in the forfeiture by the indemnifying party of substantial rights and defenses and (ii) will not, in any event, relieve the indemnifying party from any obligations to any indemnified party other than the indemnification obligation provided in paragraph (a) or (b) above. The indemnifying party shall be entitled to appoint counsel of the indemnifying party's choice at the indemnifying party's expense to represent the indemnified party in any action for which indemnification is sought (in which case the indemnifying party shall not thereafter be responsible for the fees and expenses of any separate counsel retained by the indemnified party or parties except as set forth below); provided, however, that such counsel shall be satisfactory to the indemnified party. Notwithstanding the indemnifying party's election to appoint counsel to represent the indemnified party in an action, the indemnified party shall have the right to employ separate counsel (including local counsel), and the indemnifying party shall bear the reasonable fees, costs and expenses of such separate counsel (which, if the Issuer is the indemnifying party, shall be limited to one such separate counsel and one local counsel for any Underwriter together with all persons who control such Underwriter within the meaning of the Exchange Act or the Securities Act, and no more than two such separate counsel and two local counsel for all of the Underwriters) if (i) the use of counsel chosen by the indemnifying party to represent the indemnified party would present such counsel with a conflict of interest, (ii) the actual or potential defendants in, or targets of, any such action include both the indemnified party and the indemnifying party and the indemnified party shall have reasonably concluded that there may be legal defenses available to it and/or other indemnified parties which are different from or additional to those available to the indemnifying party, (iii) the indemnifying party shall not have employed counsel satisfactory to the indemnified party to represent the indemnified party within a reasonable time after notice of the institution of such action or (iv) the indemnifying party shall authorize the indemnified party to employ separate counsel at the expense of the indemnifying party. An indemnifying party will not, without the prior written consent of the indemnified parties, settle or compromise or consent to the entry of any judgment with respect to any pending or threatened claim, action, suit or proceeding in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified parties are actual or potential parties to such claim or action) unless such settlement, compromise or consent (i) includes an unconditional release of each indemnified party from all liability arising out of such claim, action, suit or proceeding

and (ii) does not include a statement as to or an admission of fault, culpability or a failure to act, by or on behalf of any indemnified party. Notwithstanding anything contained herein to the contrary, if indemnity may be sought pursuant to Section 8(b) hereof in respect of such action or proceeding, then in addition to such separate firm for the indemnified parties, the indemnifying party shall be liable for the reasonable fees and expenses of not more than one separate firm (in addition to any local counsel) for Citigroup Global Markets Inc., the directors, officers, employees and agents of Citigroup Global Markets Inc., and all persons, if any, who control Citigroup Global Markets Inc. within the meaning of either the Securities Act or the Exchange Act for the defense of any losses, claims, damages and liabilities arising out of the Directed Share Program.

(d) In the event that the indemnity provided in paragraph (a), (b) or (c) of this Section 8 is unavailable to or insufficient to hold harmless an indemnified party for any reason, the Issuer and the Underwriters severally agree to contribute to the aggregate losses, claims, damages and liabilities (including legal or other expenses reasonably incurred in connection with investigating or defending the same) (collectively "Losses") to which the Issuer and one or more of the Underwriters may be subject in such proportion as is appropriate to reflect the relative benefits received by the Issuer on the one hand and by the Underwriters on the other from the offering of the Securities. If the allocation provided by the immediately preceding sentence is unavailable for any reason, the Issuer and the Underwriters severally shall contribute in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Issuer on the one hand and of the Underwriters on the other in connection with the statements or omissions which resulted in such Losses as well as any other relevant equitable considerations. Benefits received by the Issuer shall be deemed to be equal to the total net proceeds from the offering (before deducting expenses) received by it, and benefits received by the Underwriters shall be deemed to be equal to the total underwriting discounts and commissions, in each case as set forth on the cover page of the Prospectus. Relative fault shall be determined by reference to, among other things, whether any untrue or any alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information provided by the Issuer on the one hand or the Underwriters on the other, the intent of the parties and their relative knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. The Issuer and the Underwriters agree that it would not be just and equitable if contribution were determined by pro rata allocation or any other method of allocation which does not take account of the equitable considerations referred to above. Notwithstanding the provisions of this paragraph (d), in no event shall an Underwriter be required to contribute any amount in excess of the amount by which the total underwriting discounts and commissions received by such Underwriter with respect to the offering of the Securities exceeds the amount of any damages that such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. Notwithstanding the provisions of this paragraph (d), no person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. For purposes of this Section 8, each person who controls an Underwriter within the meaning of either the Securities Act or the Exchange Act and each director, officer, employee, affiliate and agent of an Underwriter

shall have the same rights to contribution as such Underwriter, and each person who controls the Issuer within the meaning of either the Securities Act or the Exchange Act, each officer of the Issuer who shall have signed the Registration Statement and each director of the Issuer shall have the same rights to contribution as the Issuer, subject in each case to the applicable terms and conditions of this paragraph (d).

9. Default by an Underwriter. If any one or more Underwriters shall fail to purchase and pay for any of the Securities agreed to be purchased by such Underwriter or Underwriters hereunder and such failure to purchase shall constitute a default in the performance of its or their obligations under this Underwriting Agreement, the remaining Underwriters shall be obligated severally to take up and pay for (in the respective proportions which the amount of Securities set forth opposite their names in Schedule I hereto bears to the aggregate amount of Securities set forth opposite the names of all the remaining Underwriters) the Securities which the defaulting Underwriter or Underwriters agreed but failed to purchase; provided, however, that in the event that the aggregate amount of Securities which the defaulting Underwriter or Underwriters agreed but failed to purchase shall exceed 10% of the aggregate amount of Securities set forth in Schedule I hereto, the remaining Underwriters shall have the right to purchase all, but shall not be under any obligation to purchase any, of the Securities, and if such non-defaulting Underwriters do not purchase all the Securities, this Underwriting Agreement will terminate without liability to any non-defaulting Underwriter or the Issuer. In the event of a default by any Underwriter as set forth in this Section 9, the First Closing Date shall be postponed for such period, not exceeding five Business Days, as the Representatives shall determine in order that the required changes in the Registration Statement and the Prospectus or in any other documents or arrangements may be effected. Nothing contained in this Underwriting Agreement shall relieve any defaulting Underwriter of its liability, if any, to the Issuer and any non-defaulting Underwriter for damages occasioned by its default hereunder.

10. Termination. This Underwriting Agreement shall be subject to termination in the absolute discretion of the Representatives, by notice given to the Issuer prior to delivery of and payment for the Securities, if at any time prior to such delivery and payment (i) trading in the Issuer's Common Shares shall have been suspended by the SEC or The NASDAQ Global Market or trading in securities generally on the New York Stock Exchange or The NASDAQ Global Market shall have been suspended or limited or minimum prices shall have been established on either of such exchanges, (ii) a banking moratorium shall have been declared either by Federal or New York State authorities, (iii) there shall have occurred a material disruption in commercial banking or securities settlement or clearance services or (iv) there shall have occurred any outbreak or escalation of hostilities, declaration by the United States of a national emergency or war, or other calamity or crisis the effect of which on financial markets is such as to make it, in the sole judgment of the Representatives, impractical or inadvisable to proceed with the offering or delivery of the Securities as contemplated by the Preliminary Prospectus or the Prospectus (exclusive of any supplement thereto).

11. Effects of Termination on Securities.

(a) If, after application and registration of the Underwritten Capital Increase with the Commercial Register of the Canton of Basel-Stadt pursuant to Section 3(b), prior to the First Closing Date or the relevant Option Closing Date, as the case may be, this

Underwriting Agreement is terminated pursuant to Section 10, or if the delivery of the Underwritten Securities or Applicable Option Securities to the Representatives for the account of the several Underwriters is not completed on the First Closing Date or the relevant Option Closing Date, as the case may be (each, an "Event of Non-Completion"), and unless the Issuer and the Representatives, acting on behalf of the several Underwriters, otherwise agree within ten calendar days after the Event of Non-Completion, then:

(i) the Issuer shall have a call option against the Underwriters pursuant to Section 11(b);

(ii) if the call option is not exercised, the Representatives acting on behalf of the several Underwriters shall have a put option against the Issuer pursuant to Section 11(c);

(iii) if the put option is not possible for legal reasons or insufficient to dispose of the Underwritten Securities or Applicable Option Securities, as applicable, or if such put option is not exercised within the deadline set forth in Section 11(c), the Issuer shall effect a capital reduction pursuant to Section 11(d); and

(iv) if the capital reduction is not effected in accordance with Section 11(d), the Underwriters may sell the Underwritten Securities or Applicable Option Securities, as applicable, in the market as provided in Section 11(e).

(b) Call Option.

(i) The Issuer, acting on its own behalf or on behalf of third parties, shall have the right (the "Call Option") to request in writing that the Representatives, acting on behalf of the several Underwriters, deliver the Underwritten Securities or Applicable Option Securities, as applicable, to an account specified by the Issuer against payment of an amount representing the aggregate nominal value of the respective Underwritten Securities or Applicable Option Securities, as applicable, plus expenses of the Representatives as set out in Section 11(f). The Call Option shall expire on the tenth calendar day after the Event of Non-Completion.

(ii) An acquisition of the Underwritten Securities or Applicable Option Securities, as applicable, by the Issuer for its own account shall only be permitted if the Issuer has delivered evidence to the Representatives reasonably satisfactory to the Representatives that the Issuer has sufficient freely available reserves to acquire the Underwritten Securities or Applicable Option Securities, as applicable, under this Section 11(b) or, alternatively, that the Issuer has entered into arrangements with a third party other than any of the Issuer's subsidiaries ensuring for the immediate re-sale of the Underwritten Securities or

Applicable Option Securities, as applicable, to such third party, at no less than their nominal value, on the date of acquisition of the Underwritten Securities or Applicable Option Securities, as applicable, by the Issuer.

(c) Put Option.

(i) Following the expiry of the Call Option pursuant to Section 11(b), the Representatives, acting on behalf of the several Underwriters, shall have an option (the "Put Option") to require the Issuer, subject to article 659 CO, to purchase all Underwritten Securities or Applicable Option Securities, as applicable, entered in the Commercial Register of the Canton of Basel-Stadt at their nominal value, plus expenses of the Representatives as set out in Section 11(f), within ten calendar days after receipt of a notice in writing addressed to the Issuer from the Representatives, stating that the Representatives exercise the Put Option. The Put Option shall expire on the twentieth calendar day after the Event of Non-Completion.

(ii) The notice in which the Representatives, acting on behalf of the several Underwriters, exercise the Put Option shall specify the date on which the Representatives will deliver the Underwritten Securities or Applicable Option Securities, as applicable, to the Issuer against direct payment therefor, and shall contain detailed instructions regarding payment, delivery of the Underwritten Securities or Applicable Option Securities, as applicable, and amount payable (including satisfactory details regarding the costs claimed according to Section 11(f).

(d) Capital Reduction.

(i) If the Put Option is not exercised within the deadline set forth in Section 11(c) or it is not possible for legal reasons or insufficient to dispose of the Underwritten Securities or Applicable Option Securities, as applicable, including due to non-availability of sufficient freely disposable reserves, the Issuer shall immediately call a shareholders' meeting and table the reduction of the share capital. Such shareholders' meeting shall take place no later than seventy days after the Event of Non-Completion. The Representatives will vote in favor of a reduction of the issued and outstanding share capital of the Issuer (the "Capital Reduction") by cancellation of the Underwritten Securities or Applicable Option Securities, as applicable, entered in the Commercial Register of the Canton of Basel-Stadt against repayment of the aggregate nominal value of such securities to the Representatives, acting on behalf of the several Underwriters. Prior to such shareholders' meeting, the Issuer shall use its reasonable best efforts to cause its auditors to confirm in writing, pursuant to article 732 para. 2 CO, that the claims of the Issuer's creditors are fully covered notwithstanding the Capital Reduction, provided that if such confirmation is not made by the auditors prior to such meeting, the

meeting shall be cancelled. The Issuer shall use its best efforts to cause its shareholders to vote in favor of the Capital Reduction.

(ii) At the earliest possible date, and subject to statutory law, the Capital Reduction shall be consummated by registration in the Commercial Register of the Canton of Basel-Stadt. The proceeds of the Capital Reduction, being an amount representing the aggregate nominal value of the Underwritten Securities or Applicable Option Securities, as applicable, shall be paid (for value on the date of the entry in the Commercial Register of the Canton of Basel-Stadt) in cash to the Representatives, acting on behalf of the several Underwriters.

(iii) Upon consummation of the Capital Reduction, the Issuer shall deregister the Underwritten Securities or Applicable Option Securities, as applicable, in its book of uncertificated securities (*Wertrechtebuch*) to reflect the number of Securities registered with the Commercial Register of the Canton of Basel-Stadt.

(e) Sale of Underwritten Securities or Applicable Option Securities. In addition, if an Event of Non-Completion occurs and,

(i) the Issuer fails to acquire or cause a third party to acquire the Underwritten Securities or Applicable Option Securities, as applicable, in accordance with Section 11(b) within ten calendar days after the Event of Non-Completion; and

(ii) in the event and to the extent the Put Option is not possible for legal reasons or insufficient to dispose of the Underwritten Securities or Applicable Option Securities, as applicable, including due to insufficient freely disposable reserves, or if the Put Option is not exercised within the deadline set forth in Section 11(c); and

(iii) the Capital Reduction has not been resolved by the shareholders' meeting of the Issuer within seventy days after the Event of Non-Completion,

the Representatives, acting on behalf of the several Underwriters, are entitled to sell any or all Underwritten Securities or Applicable Option Securities on terms which the Representatives deem fit under the circumstances. The difference between the proceeds of such sale and the nominal amount of such Underwritten Securities or Applicable Option Securities, as applicable, sold, less the costs and expenses pursuant to Section 11(f) reasonably incurred by the Representatives in connection with the sale, if any, shall be transferred to the Issuer.

(f) Costs; Indemnity.

(i) The Issuer shall bear (a) all costs directly incidental to the Capital Reduction, including but not limited to notarization costs, costs of the Commercial Register and costs of publication of the Capital Reduction

and (b) the costs of the Representatives reasonably incurred in connection with the Call Option, the Put Option or the Capital Reduction, as applicable (including, but not limited to, (x) non-income taxes imposed by a jurisdiction other than the jurisdiction of incorporation of the applicable Representative, (y) interest at a rate of the 3-month CHF LIBOR, calculated on a 30/360 basis, following the Event of Non-Completion until the payment of proceeds to the Representatives, acting on behalf of the several Underwriters, and (z) reasonable out-of-pocket expenses of the Representatives and their counsel).

(ii) The Issuer further undertakes to indemnify the Representatives for, and to hold the Representatives harmless from, any reasonable costs, expenses, third-party claims and liabilities, actual or contingent, that may be incurred by or made against the Representatives in connection with the Capital Reduction.

12. Representations and Indemnities to Survive. The respective agreements, representations, warranties, indemnities and other statements of the Issuer or its officers and of the Underwriters set forth in or made pursuant to this Underwriting Agreement will remain in full force and effect, regardless of any investigation made by or on behalf of any Underwriter or the Issuer or any of the officers, directors, employees, agents, affiliates or controlling persons referred to in Section 8 hereof, and will survive delivery of and payment for the Securities. The provisions of Sections 7 and 8 hereof shall survive the termination or cancellation of this Underwriting Agreement.

13. Notices. All communications hereunder will be in writing and effective only on receipt, and, if sent to the Representatives, will be mailed by courier or registered mail, delivered or transmitted by standard form of telecommunication to Citigroup Global Markets Inc. at 388 Greenwich Street, New York, New York 10013, Attention: General Counsel, facsimile number: +1 (646) 291-1469; or, if sent to CRISPR Therapeutics AG, will be mailed, by courier or registered mail, delivered or transmitted by standard form of communication to Crispr Therapeutics AG, Aeschenvorstadt 36, CH-4051 Basel, Switzerland, Attention: CEO, with copies (which shall not constitute notice) to: VISCHER AG, Aeschenvorstadt 4, CH-4051 Basel, Switzerland, Attention: Dr. Matthias Staehelin, facsimile: 41 58 211 33 10, and Goodwin Procter LLP, 100 Northern Avenue, Boston, MA 02210, Attention: Mitchell S. Bloom and Robert E. Puopolo, facsimile: (617) 321-4377.

14. Successors. This Underwriting Agreement will inure to the benefit of and be binding upon the parties hereto and their respective successors and the officers, directors, employees, agents and controlling persons referred to in Section 8 hereof, and no other person will have any right or obligation hereunder.

15. Jurisdiction. The Issuer agrees that any suit, action or proceeding against the Issuer brought by any Underwriter, the directors, officers, employees, affiliates and agents of any Underwriter, or by any person who controls any Underwriter, arising out of or based upon this Underwriting Agreement or the transactions contemplated hereby may be instituted in any State or U.S. federal court in The City of New York and County of New York, and waives any

objection which it may now or hereafter have to the laying of venue of any such proceeding, and irrevocably submits to the exclusive jurisdiction of such courts in any suit, action or proceeding. The Issuer hereby appoints CT Corporation System, located at 155 Federal Street, Suite 700, Boston, MA 02110, as its authorized agent (the "Authorized Agent") upon whom process may be served in any suit, action or proceeding arising out of or based upon this Underwriting Agreement or the transactions contemplated herein that may be instituted in any State or U.S. federal court in The City of New York and County of New York, by any Underwriter, the directors, officers, employees, affiliates and agents of any Underwriter, or by any person who controls any Underwriter, and expressly accepts the exclusive jurisdiction of any such court in respect of any such suit, action or proceeding. The Issuer hereby represents and warrants that the Authorized Agent has accepted such appointment and has agreed to act as said agent for service of process, and the Issuer agrees to take any and all action, including the filing of any and all documents that may be necessary to continue such appointment in full force and effect as aforesaid. Service of process upon the Authorized Agent shall be deemed, in every respect, effective service of process upon the Issuer. Notwithstanding the foregoing, any action arising out of or based upon this Underwriting Agreement may be instituted by any Underwriter, the directors, officers, employees, affiliates and agents of any Underwriter, or by any person who controls any Underwriter, in any court of competent jurisdiction in Switzerland.

16. Bail-In Provision. Notwithstanding any other term of this Underwriting Agreement or any other agreements, arrangements, or understanding between the Underwriters and the Issuer, the Issuer acknowledges, accepts, and agrees to be bound by:

(a) the effect of the exercise of Bail-in Powers by the Relevant Resolution Authority in relation to any BRRD Liability of the Underwriters to the Issuer under this agreement, that (without limitation) may include and result in any of the following, or some combination thereof:

(i) the reduction of all, or a portion, of the BRRD Liability or outstanding amounts due thereon;

(ii) the conversion of all, or a portion, of the BRRD Liability into shares, other securities or other obligations of the Underwriters or another person (and the issue to or conferral on the Issuer of such shares, securities or obligations;

(iii) the cancellation of the BRRD Liability;

(iv) the amendment or alteration of any interest, if applicable, thereon, the maturity or the dates on which any payments are due, including by suspending payment for a temporary period;

(b) the variation of the terms of this Underwriting Agreement, as deemed necessary by the Relevant Resolution Authority, to give effect to the exercise of Bail-in Powers by the Relevant Resolution Authority.

(c) As used in this Section 16, "Bail-in Legislation" means in relation to a member state of the European Economic Area which has implemented, or which at any time implements, the BRRD, the relevant implementing law, regulation, rule or

requirement as described in the EU Bail-in Legislation Schedule from time to time; "Bail-in Powers" means any Write-down and Conversion Powers as defined in relation to the relevant Bail-in Legislation; "BRRD" means Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions and investment firms; "EU Bail-in Legislation Schedule" means the document described as such, then in effect, and published by the Loan Market Association (or any successor person) from time to time at http://www.lma.eu.com/; "BRRD Liability" has the same meaning as in such laws, regulations, rules or requirements implementing the BRRD under the applicable Bail-in Legislation; and "Relevant Resolution Authority" means the resolution authority with the ability to exercise any Bail-in Powers in relation to the Underwriters.

17. No Fiduciary Duty. The Issuer hereby acknowledges that (a) the purchase and sale of the Securities pursuant to this Underwriting Agreement is an arm's-length commercial transaction between the Issuer, on the one hand, and the Underwriters and any affiliate through which it may be acting, on the other, (b) the Underwriters are acting as principal and not as an agent or fiduciary of the Issuer and (c) the Issuer's engagement of the Underwriters in connection with the offering and the process leading up to the offering is as independent contractors and not in any other capacity. Furthermore, the Issuer agrees that it is solely responsible for making its own judgments in connection with the offering (irrespective of whether any of the Underwriters has advised or is currently advising the Issuer on related or other matters). The Issuer agrees that it will not claim that the Underwriters have rendered advisory services of any nature or respect, or owe an agency, fiduciary or similar duty to the Issuer, in connection with such transaction or the process leading thereto.

18. Integration. This Underwriting Agreement supersedes all prior agreements and understandings (whether written or oral) between the Issuer and the Underwriters, or any of them, with respect to the subject matter hereof.

19. Applicable Law. This Underwriting Agreement will be governed by and construed in accordance with the laws of the State of New York applicable to contracts made and to be performed within the State of New York.

20. Waiver of Jury Trial. The Issuer and the Underwriters hereby irrevocably waive, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Underwriting Agreement or the transactions contemplated hereby.

21. Counterparts. This Underwriting Agreement may be signed in one or more counterparts, each of which shall constitute an original and all of which together shall constitute one and the same agreement.

22. Headings. The section headings used herein are for convenience only and shall not affect the construction hereof.

If the foregoing is in accordance with your understanding of our agreement, please sign and return to us the enclosed duplicate hereof, whereupon this letter and your acceptance shall represent a binding agreement among the Issuer and the several Underwriters.

Very truly yours,

CRISPR Therapeutics AG

By: _____
Name:
Title:

The foregoing Underwriting Agreement is hereby
confirmed and accepted as of the
date first above written.

Citigroup Global Markets Inc.
Piper Jaffray & Co.
Barclays Capital Inc.

By: Citigroup Global Markets Inc.

By: _____
Name:
Title:

By: Piper Jaffray & Co.

By: _____
Name:
Title:

By: Barclays Capital Inc.

By: _____
Name:
Title:

For themselves and the other
several Underwriters named in
Schedule I to the foregoing
Underwriting Agreement.

SCHEDULE I

Underwriters	Number of Underwritten Securities to be Purchased
Citigroup Global Markets Inc.	
Piper Jaffray & Co.	
Barclays Capital Inc.	
Guggenheim Securities, LLC	
Total	

SCHEDULE II

Free Writing Prospectuses included in the Disclosure Package:

[-]

SCHEDULE III

Written Testing-the-Water Communications:

[-]

ANNEX A

TRACR Hematology Limited

CRISPR Therapeutics Limited

CRISPR Therapeutics, Inc.

[Subscription Form]

[Form of Lock Up Agreement] EXHIBIT B

CRISPR Therapeutics AG
Public Offering of Common Shares

[*insert date***]**, 2016

Citigroup Global Markets Inc.
Piper Jaffray & Co.
As Representatives of the several Underwriters,

c/o Citigroup Global Markets Inc.
388 Greenwich Street
New York, New York 10013

Ladies and Gentlemen:

This letter is being delivered to you in connection with the proposed underwriting agreement (the "Underwriting Agreement"), among CRISPR Therapeutics AG, a stock corporation (*Aktiengesellschaft*) incorporated under the laws of Switzerland (the "Issuer"), and each of you as representatives of a group of underwriters named therein (the "Underwriters"), relating to an underwritten public offering of common shares, nominal value CHF 0.03 per share (the "Common Shares"), of the Issuer (the "Offering").

In order to induce you and the other Underwriters to enter into the Underwriting Agreement, the undersigned will not, without the prior written consent of Citigroup Global Markets Inc. and Piper Jaffray & Co. (together, the "Representatives"), offer, sell, contract to sell, pledge or otherwise dispose of, (or enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise) by the undersigned or any affiliate of the undersigned or any person in privity with the undersigned or any affiliate of the undersigned), directly or indirectly, including the filing (or participation in the filing) of a registration statement with the Securities and Exchange Commission (the "SEC") in respect of, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules and regulations of the SEC promulgated thereunder with respect to, any shares of capital stock of the Issuer or any securities convertible into, or exercisable or exchangeable for such capital stock, or publicly announce an intention to effect any such transaction, for a period commencing on the date hereof and continuing through 180 days after the date of the Underwriting Agreement (the "Lockup Period"), other than:

(i) sales of Common Shares by the undersigned to the Underwriters pursuant to the Underwriting Agreement;

(ii) transactions relating to Common Shares or other securities convertible or exercisable into Common Shares acquired in open market transactions after the completion of the Offering;

(iii) transfers of shares of capital stock of the Issuer or any securities convertible into, or exercisable or exchangeable for, such capital stock as a bona fide gift;

(iv) exercise of options or warrants to purchase Common Shares or the receipt of Common Shares upon the vesting of restricted Common Share awards and any related transfer of Common Shares to the Issuer in connection therewith (x) deemed to occur upon the "cashless" or "net" exercise of such options or warrants or (y) for the purpose of paying the exercise price of such options or warrants or for paying taxes due as a result of the exercise of such options or warrants, the vesting of such options, warrants or Common Share awards, or as a result of the vesting of such Common Shares, it being understood that all Common Shares received upon such exercise, vesting or transfer will remain subject to the restrictions of this agreement during the Lock-Up Period;

(v) transfers or dispositions of shares of capital stock of the Issuer or any securities convertible into, or exercisable or exchangeable for, such capital stock to the spouse, domestic partner, parent, child or grandchild or first cousin of the undersigned (each, an "Immediate Family Member") or to a trust formed for the direct or indirect benefit of the undersigned or an Immediate Family Member;

(vi) transfers or dispositions of shares of capital stock of the Issuer or any securities convertible into, or exercisable or exchangeable for, such capital stock by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or trustee of the undersigned;

(vii) transfers or dispositions of shares of capital stock of the Issuer or any securities convertible into, or exercisable or exchangeable for, such capital stock pursuant to a divorce settlement agreement or decree or a qualified domestic relations order as defined in the United States Employee Retirement Income Security Act of 1974, as amended, or similar foreign laws;

(viii) transfers or dispositions of shares of capital stock of the Issuer or any securities convertible into, or exercisable or exchangeable for, such capital stock to any affiliate (as such term is defined in Rule 405 of the Securities Act of 1933, as amended), limited partners, general partners, limited liability company members or shareholders of the undersigned, or if the undersigned is a corporation to any wholly owned subsidiary of such corporation;

(ix) the establishment of a trading plan pursuant to Rule 10b-5-1 under the Exchange Act for the transfer of Common Shares or securities convertible into or exchangeable for Common Shares, *provided* that such plan does not provide for the transfer of Common Shares during the Lock-Up Period; and

(x) transfers of Common Shares to the Issuer pursuant to agreements under which the Issuer has the option to repurchase such Common Shares upon termination of the undersigned's employment with the Issuer, *provided* that the

repurchase price for any such Common Shares shall not exceed the original purchase price paid by the undersigned to the Issuer for such Common Shares;

provided that in each case (other than (i)), no filing by any party under Section 13 or Section 16(a) of the Exchange Act or other public announcement shall be required or voluntarily made by the undersigned or the recipient during the Lock-Up Period; *provided further* that, in the case of any transfer or distribution pursuant to clauses (iii), (v), (vi), (vii) and (viii), (a) the recipient agrees to be bound in writing by the same restrictions set forth herein for the duration of the Lock-Up Period and (b) any such transfer shall not involve a disposition for value. Notwithstanding the foregoing, the undersigned may make transfers described in clauses (iii) or (v) above prior to the date that is ten days following the initial public filing with the SEC of the registration statement relating to the Offering, *provided* that (a) the recipient agrees to be bound in writing by the same restrictions set forth herein for the duration of the Lock-Up Period and (b) any such transfer shall not involve a disposition for value.

If the undersigned is an officer or director of the Issuer, the undersigned further agrees that the foregoing restrictions shall be equally applicable to any issuer-directed Common Shares the undersigned may purchase in the Offering.

If the undersigned is an officer or director of the Issuer, (i) the Representatives agree that, at least three business days before the effective date of any release or waiver of the foregoing restrictions in connection with a transfer of Common Shares, the Representatives will notify the Issuer of the impending release or waiver, and (ii) the Issuer has agreed in the Underwriting Agreement to announce the impending release or waiver by press release through a major news service at least two business days before the effective date of the release or waiver. Any release or waiver granted by the Representatives hereunder to any such officer or director shall only be effective two business days after the publication date of such press release. The provisions of this paragraph will not apply if (a) the release or waiver is effected solely to permit a transfer not for consideration and (b) the transferee has agreed in writing to be bound by the same terms described in this letter to the extent and for the duration that such terms remain in effect at the time of the transfer.

The restrictions contained herein shall not apply to any transfers, sales, tenders or other dispositions of Common Shares or any security convertible into or exercisable or exchangeable for Common Shares pursuant to a bona fide third-party tender offer, merger, amalgamation, consolidation or other similar transaction made to or involving all holders of the Common Shares or such other securities pursuant to a change of control of the ownership of the Issuer provided that such transaction is approved by the Issuer's Board of Directors (including, without limitation, the entry into any lock-up, voting or similar agreement pursuant to which the undersigned may agree to transfer, sell, tender or otherwise dispose of Common Shares or other such securities in favor of any such transaction); *provided* that, if such tender offer, merger, amalgamation, consolidation or other similar transaction is not completed, any Common Shares or any security convertible into or exercisable or exchangeable for Common Shares subject to this letter agreement shall remain subject to the restrictions contained in this letter agreement. For purposes of this letter agreement, "change of control" shall mean the consummation of any bona fide third party tender offer, merger, amalgamation, consolidation or other similar transaction the result of which is that any "person" (as defined in Section 13(d)(3) of the

Exchange Act), or group of persons, other than the Issuer, becomes the beneficial owner (as defined in Rules 13d-3 and 13d-5 of the Exchange Act) of 50% of the total voting power of the voting stock of the Issuer.

This agreement shall automatically terminate and the undersigned shall be released from all obligations under this letter upon the earliest to occur, if any, of (i) the Issuer, on the one hand, or the Representatives, on the other hand, advising the other in writing, prior to the execution of the Underwriting Agreement, that they have determined not to proceed with the Offering, (ii) the Underwriting Agreement being terminated prior to the First Closing Date (as defined in the Underwriting Agreement), (iii) the registration statement filed with the SEC with respect to the Offering being withdrawn and (iv) December 29, 2016, if the Offering has not been completed by such date.

Yours very truly,

[*insert officer, director or shareholder***]**

By: _____

Name:
Title:

[Form of Press Release] EXHIBIT C

[*name of issuer***]**
[*insert date***]**

CRISPR Therapeutics AG (the "Issuer") announced today that Citigroup Global Markets Inc. and Piper Jaffray & Co., the book-running managers in the Issuer's recent public sale of [●] common shares, are [waiving] [releasing] a lock-up restriction with respect to [●] common shares of the Issuer held by [certain officers or directors] [an officer or director] of the Issuer. The [waiver] [release] will take effect on **[***insert date***],** 201_, and the shares may be sold on or after such date.

This press release is not an offer for sale of the securities in the United States or in any other jurisdiction where such offer is prohibited, and such securities may not be offered or sold in the United States absent registration or an exemption from registration under the United States Securities Act of 1933, as amended.

[*insert letterhead of Citigroup Global Markets Inc.***]**

[*name of issuer***]**
Public Offering of Common Shares

[*insert date***]**, 201_

[*insert name receiving waiver***]**
[*insert address***]**

Dear Mr./Ms. **[***insert name***]**:

This letter is being delivered to you in connection with the offering by CRISPR Therapeutics AG (the "Issuer") of [●] common shares, nominal value CHF 0.03 per share (the "Common Shares"), of the Issuer and the lock-up letter dated **[***insert date***]**, 201[●] (the "Lock-up Letter"), executed by you in connection with such offering, and your request for a [waiver] [release] dated **[***insert date***]**, 201**[●]**, with respect to [●] Common Shares (the "Shares").

Citigroup Global Markets Inc. and Piper Jaffray & Co. hereby agree to [waive] [release] the transfer restrictions set forth in the Lock-up Letter, but only with respect to the Shares, effective **[***insert date***]**, 20[●]; provided, however, that such [waiver] [release] is conditioned on the Issuer announcing the impending [waiver] [release] by press release through a major news service at least two business days before effectiveness of such [waiver] [release]. This letter will serve as notice to the Issuer of the impending [waiver] [release].

Except as expressly [waived] [released] hereby, the Lock-up Letter shall remain in full force and effect.

Yours very truly,

Citigroup Global Markets Inc.

By: _____
Name:
Title:

Piper Jaffray & Co.

By: _____
Name:
Title:

cc: Issuer

Registered

CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel

Basel, October 7, 2016

CRISPR Therapeutics AG – Registration Statement on Form S-1

VISCHER Ltd

Basel
Aeschenvorstadt 4
CH-4010 Basel
Switzerland
Phone +41 58 211 33 00
Fax +41 58 211 33 10

Zurich
Schützengasse 1
CH-8021 Zurich
Switzerland
Phone +41 58 211 34 00
Fax +41 58 211 34 10

Civil Law Notaries in
Basel-City

Dear Sir or Madam,

This opinion is being rendered at the request of CRISPR Therapeutics AG (the "**Company**") in connection with the filing of a registration statement on Form S-1 on September 9, 2016 (the "**Registration Statement**") for the purpose of registering under the United States Securities Act of 1933, as amended (the "**Securities Act**"), the offer and sale of such number of common shares of CHF 0.03 par value each of the Company as authorized by the Shareholders Resolution (as defined below), including any additional shares with a nominal value of CHF 0.03 sold or, if and to the extent such option is exercised, to be sold to the underwriters pursuant to the over-allotment option granted by the Company to the underwriters (together the "**Shares**"). As such counsel, we have been requested to render an opinion as to certain matters of Swiss law.

I. BASIS OF OPINION

This opinion is confined to and given on the basis of the laws of Switzerland in force at the date hereof and as currently applied by Swiss courts. In the absence of statutory or established case law, we base our opinion on our independent professional judgement.

This opinion is also confined to the matters stated herein and is not to be read as extending, by implication or otherwise, to any other matter.

For the purpose of giving this opinion, we have only examined the following documents:

a) a pdf copy of the Registration Statement dated as of 9 September 2016;

b) an original copy of the notarized articles of association (*Statuten*) of the Company dated 19 July 2016 (the "**Articles**"), as filed with the Commercial Register of the Canton of Basel-City;

c) an excerpt from the Commercial Register of the Canton of Basel-Stadt in respect of the Company, certified by such Commercial Register to be up-to-date as of 28 July 2016 (the "**Excerpt**");

d) a pdf copy of the notarized resolution of the general meetings of the shareholders and of the holders of preferred shares of the Company, both dated 19 July 2016 (the "**Shareholders Resolution**") and regarding, among others, the authorization (the "**Authorization**") granted to the board of directors of the Company (the "**Board**") to (i) increase the share capital of the Company by an amount up to CHF 491'970.15 (the "**Capital Increase**"), (ii) issue up to 16'399'005 shares of a nominal value of CHF 0.03 each and (iii) adapt the Articles accordingly.

The documents referred to above in paragraphs a) to d) are referred to together as the "**Documents**".

No documents have been reviewed by ourselves in connection with this opinion other than those listed above. Accordingly, our opinion is limited to the above Documents and their legal implications under Swiss law.

All terms used in this opinion in uppercase form shall have the meaning ascribed to them in the Registration Statement, unless otherwise defined herein.

II. ASSUMPTIONS

In rendering the opinion below, we have assumed:

a) the conformity to the Documents of all documents produced to us as copies, fax copies or via e-mail, and that the original was executed in the manner appearing on the copy of the draft;

b) the genuineness and authenticity of the signatures on all copies of the original Documents thereof which we have examined;

c) the Shareholders Resolution has been duly resolved in a meeting duly convened and has not been rescinded or amended and are in full force and effect;

d) the Audit Confirmations have not been rescinded or amended and are in full force and effect;

e) the Registration Statement has been duly filed by the Company;

f) the Articles and the Excerpt are unchanged and correct as of the date hereof and no changes have been made which should have been or should be reflected in the Articles or the Excerpt as of the date hereof; and

g) to the extent relevant for purposes of this opinion, all factual information contained in, or material statements given in connection with, the Documents are true, complete and accurate.

III. OPINION

Based upon the foregoing and subject to the qualifications set out below, we are of the opinion that the Shares, when sold and upon registration of the corresponding share capital increase into the Commercial Register of the Canton of Basel-Stadt, will be validly issued, fully paid-in (up to their nominal amount) and non-assessable (which term means when used herein that no further contributions have to be made by the holders of the Shares).

IV. QUALIFICATIONS

This opinion is subject to the following qualifications:

a) This opinion is limited to matters of Swiss law as in force on the date hereof and as applied and construed by the courts of Switzerland. We have not investigated the laws of any jurisdiction other than Switzerland, or any matters of fact.

b) The opinion set forth herein is limited to the matters specifically addressed herein, and no other opinion or opinions are expressed or may be implied or inferred. In

particular we express no opinion as to any commercial, calculating, auditing or other non-legal matters. Further, we express no opinion as to tax law.

c) We express no opinion as to the accuracy or completeness of the information contained in the Registration Statement.

* * *

We have rendered this opinion as of the date hereof and we assume no obligation to advise you of changes that may thereafter be brought to our attention.

In this opinion, Swiss legal concepts are expressed in English terms and not in their original terms. The concepts concerned may not be identical to the concepts described by the same English terms as they exist under the laws of other jurisdictions. Each person relying on this opinion agrees, in so relying, that only VISCHER AG shall have any liability in connection with this opinion, that the agreement in this Section IV and all liability and other matters relating to this opinion shall be governed exclusively by Swiss law and that the courts in Zurich, Switzerland shall have exclusive jurisdiction to settle any dispute relating to this opinion.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the references to us under the heading “Legal Matters” contained in the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act.

Very truly yours,

VISCHER AG

/s/ Dr. Matthias Staehelin

Dr. Matthias Staehelin

VISCHER Ltd

Basel
Aeschenvorstadt 4
CH-4010 Basel
Switzerland
Phone +41 58 211 33 00
Fax +41 58 211 33 10

Zurich
Schützengasse 1
CH-8021 Zurich
Switzerland
Phone +41 58 211 34 00
Fax +41 58 211 34 10

Civil Law Notaries in
Basel-City

CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel

Basel, October 7, 2016

CRISPR Therapeutics AG –Registration Statement on Form S-1

Dear Sirs,

This opinion is being rendered at the request of the Company in connection with the Registration Statement on Form S-1 filed with the U.S. Securities and Exchange Commission on September 9, 2016, (the "Registration Statement"), which term does not include any other document or agreement whether or not specifically referred to therein or attached as an exhibit or schedule thereto). As such counsel, we have been requested to render an opinion as to certain matters of Swiss law.

I. DOCUMENTS

This opinion is confined to and given on the basis of the laws of Switzerland in force at the date hereof and as currently applied by the Swiss courts. In the absence of statutory or established case law, we base our opinion on our independent professional judgement.

This opinion is also confined to the matters stated herein and is not to be read as extending, by implication or otherwise, to any other matter.

For the purpose of giving this opinion, we have only examined a pdf copy of the Registration Statement.

All terms used in this opinion in uppercase form shall have the meaning ascribed to them in the Registration Statement, unless otherwise defined herein.

II. ASSUMPTIONS

In rendering the opinion below, we have assumed:

a) the offering and sale of the shares being registered by the Registration Statement will be conducted in the manner as described in the Registration Statement;

b) the Registration Statement has been duly submitted by the Company with the U.S. Securities and Exchange Commission; and

c) to the extent relevant for purposes of this opinion, all factual information contained in, or material statements given in connection with, the Registration Statement are true, complete and accurate.

III. OPINION

Based upon the foregoing and subject to the qualifications set out below, we hereby confirm that as of the date hereof the discussion in the Registration Statement contained under the heading “Taxation—Swiss Tax Considerations” insofar as it addresses matters of Swiss tax law or considerations, represents our opinion with respect to and limited to the matters referred to therein.

IV. QUALIFICATIONS

This opinion is subject to the following qualifications:

a) This opinion is limited to matters of Swiss law as in force on the date hereof and as applied and construed by the courts of Switzerland. We have not investigated the laws of any jurisdiction other than Switzerland, or any matters of fact.

b) The opinion set forth herein is limited to the matters specifically addressed herein, and no other opinion or opinions are expressed or may be implied or inferred.

c) Except as expressly stated herein, we express no opinion as to any other legal matters. We express no opinion as to any non-legal matters.

We have rendered this opinion as of the date hereof and we assume no obligation to advise you of changes that may thereafter be brought to our attention.

In this opinion, Swiss legal concepts are expressed in English terms and not in their original terms. The concepts concerned may not be identical to the concepts described by the same English terms as they exist under the laws of other jurisdictions. Each person relying on this opinion agrees, in so relying, that only VISCHER AG shall have any liability in connection with this opinion, that the agreement in this Section IV and all liability and other matters relating to this opinion shall be governed exclusively by Swiss law and that the courts in Zurich, Switzerland shall have exclusive jurisdiction to settle any dispute relating to this opinion.

This opinion is an exhibit to the Registration Statement and may be relied upon for the purpose of the registration pursuant to the Registration Statement. It may not be supplied, and its contents or existence may not be disclosed, to any person other than as an Exhibit to (and therefore together with) the Registration Statement and may not be relied upon for any purpose other than the registration pursuant to the Registration Statement.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the references to us under the heading “Legal Matters” contained in the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act.

Very truly yours,

VISCHER AG

/s/ Nadia Tarolli

Nadia Tarolli

SPECIFIC TERMS IN THIS EXHIBIT HAVE BEEN REDACTED BECAUSE CONFIDENTIAL TREATMENT FOR THOSE TERMS HAS BEEN REQUESTED. THESE REDACTED TERMS HAVE BEEN MARKED IN THIS EXHIBIT WITH THREE ASTERISKS [***]. AN UNREDACTED VERSION OF THIS EXHIBIT HAS BEEN SEPARATELY FILED WITH THE SECURITIES AND EXCHANGE COMMISSION.

Exhibit 10.1

EXECUTION VERSION

JOINT VENTURE AGREEMENT

BETWEEN

BAYER HEALTHCARE LLC

- and -

CRISPR THERAPEUTICS AG

December 19, 2015

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

TABLE OF CONTENTS

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULES

APPENDICES

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

JOINT VENTURE AGREEMENT

This Agreement is made as of the 19th day of December 2015

BETWEEN

BAYER HEALTHCARE LLC ("Bayer"), a limited liability company incorporated under the laws of Delaware,

AND

CRISPR THERAPEUTICS AG ("CRISPR"), a corporation organized under the laws of Switzerland.

RECITALS

Bayer is a limited liability company with business activities in the health care industries.

CRISPR is a multinational corporation with business activities in the biopharmaceutical gene editing industry.

Bayer wishes to collaborate with a company having a high reputation in genome editing technology to further its objective of entering the genome editing market.

CRISPR wishes to collaborate with a company having a high reputation in the health care industry throughout the world to further its objective of entering the genome editing market.

Bayer and CRISPR wish to establish a joint venture entity for the development of products in the Fields (the "Company").

Bayer and CRISPR have agreed to define and regulate their relationship to achieve their mutual objectives with respect to the Business through this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

NOW THEREFORE, THIS AGREEMENT WITNESSES that, in consideration of the mutual promises, covenants, warranties and undertakings set forth herein, and for other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

ARTICLE 1 - DEFINITIONS

1.1 *Definitions*

The terms appearing in Schedule 1.1 shall have the meanings therein attributed to those terms.

ARTICLE 2 - INTERPRETATION, INCORPORATION OF SCHEDULES AND GOVERNING LAW

2.1 *Reserved*

2.2 *Governing Law*

The Parties agree that this Agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

2.3 *Choice of Law*

Notwithstanding that the laws of the State of New York shall apply to and govern this Agreement, any choice of law specified in any of the documents and agreements referred to herein and made a part hereof shall be respected by the Parties and shall take precedence over the choice of law provision specified in Section 2.2.

ARTICLE 3 - OBJECTIVES OF THE COMPANY AND IMPLEMENTATION OF THE JOINT VENTURE

3.1 *Objectives of the Company*

The Parties' objectives in establishing the Company are to Develop and Commercialize Products and Licensed Agents in the Fields identified in Schedule 3.1 (the "Objective") and otherwise engage in the Business, and any activities incidental or ancillary thereto.

The Objectives and means of achieving them will be more fully set out in the Initial Business Plan and thereafter in the annually updated Rolling Business Plan.

3.2 *Implementation of the Joint Venture*

(a) On the date hereof, Bayer Global Investments, B.V. and CRISPR have executed and delivered that certain subscription agreement to document the terms and conditions of Bayer's investment in CRISPR in connection with its public offering attached as Schedule 3.2(a) (the "Subscription Agreement").

(b) The Parties shall take the following actions in furtherance of the Objectives:

(i) The Parties, or their respective wholly-owned subsidiaries, shall form the Company as promptly as practicable following the execution of this Agreement. The Company shall be a limited liability partnership formed under the laws of the United Kingdom with organizational documents to

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

be in a form to be mutually agreed prior to the Effective Date by the Parties (as amended or otherwise modified in accordance with this Agreement and such documents, the "Company Organization Documents").

(ii) Each Party shall contribute, or cause to be contributed, to the capital of the Company the first installment of its respective initial cash capital contributions (the "Initial Contributions"). The amount of each installment of the Initial Contributions of each of Bayer and CRISPR shall be as set forth in Schedule 3.2(b)(ii), it being understood that the first installment of the Initial Contribution of Bayer (the "First Installment") shall amount to (y) US $10,000,000 plus (z) US $35,000,000 which is designated to be used by the Company to pay the consideration under the CRISPR IP Contribution Agreement totaling US $35,000,000 ("Technology Access Fee") to CRISPR, provided that the Parties shall procure that the Company will pay US $15,000,000 of the Technology Access Fee (the "Delayed TAF Amount") to CRISPR only […***…] Business Days after the provision of Evidence Related to Global Filings (unless a TAF Funding Event has occurred, in which case […***…] Business Days after Bayer's funding of the second installment of its Initial Contribution). The payment of the First Installment by Bayer and the Initial Contribution by CRISPR shall occur on the Effective Date. The Delayed TAF Amount shall be reserved by the Company for the payment of the Technology Access Fee to CRISPR in accordance with the terms of the CRISPR IP Contribution Agreement, and not used by the Company or a Local Operating Entity for any other purpose without the prior written consent of CRISPR except as otherwise set forth herein. The Parties agree that if the initial US $10,100,000 paid as part of the First Installment is exhausted in full, the Company may, following written notice to the Parties, use the Delayed TAF Amount to fund operating expenses of the Company prior to the payment of the second installment of the Bayer Initial Contribution (the "TAF Funding Event"); provided, that in no event shall the use of any or all of the Delayed TAF Amount reduce or otherwise impact the Company's obligation to pay the Technology Access Fee to CRISPR in full in accordance with the terms of the CRISPR IP License Agreement, provided that Evidence Related to Global Filings has been provided to Bayer. The second installment of the Initial Contribution by Bayer shall occur within […***…] Business Days of the provision of Evidence Related to Global Filings.

(iii) Bayer shall, and the Parties shall cause the Company to, enter into an agreement between the Company and Bayer (or an Affiliate reasonably acceptable to CRISPR), in a form to be mutually agreed by the Parties prior to the Effective Date and containing provisions in accordance with the Transaction Documents and Schedule 3.2(b)(iii) (the "Bayer Services Agreement").

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(iv) CRISPR shall, and the Parties shall cause the Company to, enter into an agreement between the Company and CRISPR (or an Affiliate reasonably acceptable to Bayer), in a form to be mutually agreed by the Parties prior to the Effective Date and containing provisions in accordance with the Transaction Documents and Schedule 3.2(b)(iv) (the "CRISPR Services Agreement").

(v) Bayer AG shall, and the Parties shall cause the Company to, enter into that certain license agreement between the Company and Bayer AG in substantially the form attached as Schedule 3.2(b)(v) to license the rights to the Bayer Intellectual Property into the Company (the "Bayer IP Contribution Agreement").

(vi) The Parties shall, and the Parties shall cause the Company to, enter into an agreement among the Company, Bayer and CRISPR, in substantially the form attached as Schedule 3.2(b)(vi) (the "Option Agreement") and an out-license agreement in a form to be attached thereto and to be mutually agreed by the Parties prior to the Effective Date (the "Form License Agreement").

(vii) Bayer AG and CRISPR and their respective Affiliates shall enter into that certain cross-license agreement in substantially the form attached as Schedule 3.2(b)(vii) to document the license of certain Intellectual Property of Bayer AG and CRISPR and their respective Affiliates to CRISPR and its Affiliates and Bayer AG, respectively (the "Cross-License Agreement").

(viii) Bayer AG, CRISPR and their respective Affiliates and the Company shall enter into that certain intellectual property management agreement in substantially the form attached as Schedule 3.2(b)(viii) to document the rights and obligations of Bayer AG, CRISPR and its Affiliates and the Company with respect to the ownership of, use, preparation, prosecution, maintenance and enforcement of Know-How and Patents arising under the activities performed in the exercise of rights licensed or retained under the Transaction Documents (the "Intellectual Property Management Agreement").

(ix) The Parties shall cause the formation of a U.S. limited liability company formed under the laws of the state of Delaware to be wholly owned by the Company with organizational documents to be in a form to be mutually agreed by the Parties prior to the Effective Date and containing provisions in accordance with this Agreement for the governance of the Company (as amended or otherwise modified in accordance with this Agreement and such documents, the "Subsidiary Organization Documents").

(x) CRISPR and its Affiliates shall, and the Parties shall cause the Company to, enter into that certain license agreement between the Company and

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

CRISPR and its Affiliates in substantially the form attached as Schedule 3.2(b)(x) to license the rights to the CRISPR Intellectual Property into the Company (the "CRISPR IP Contribution Agreement").

(xi) Bayer and CRISPR shall (a) take promptly all actions necessary to prepare any filings, or cause their "ultimate parent entities" as that term is defined in the Hart-Scott-Rodino Antitrust Improvement Act of 1976 as amended (the "HSR Act") or relevant regulations to promptly prepare any filings required of any of them under the HSR Act, which shall each be filed with the appropriate Governmental Authorities by […***…], and each such filing shall request the early termination of the waiting period required by the HSR Act; (b) use commercially reasonable efforts to comply at the earliest practicable date with any request for additional information received by any of them from the Federal Trade Commission or the Antitrust Division of the Department of Justice or any other Governmental Authority with authority regarding antitrust or competition matters; and (c) reasonably cooperate with each other in connection with the preparation and making of any such filings and the clearance of the contemplated transactions under antitrust or competition Law. […***…] Each Party agrees to notify the other party promptly of any material communication from a Governmental Authority regarding the contemplated transactions. Without limiting the generality of the foregoing, each Party shall provide the other Party (or its representatives) upon request copies of all correspondence and written productions between such Party and any Governmental Authority relating to the contemplated transactions. The Parties may, as they deem advisable, designate any competitively sensitive materials provided to the other party as "outside counsel only." Such materials and the information contained therein shall be given only to outside counsel of the recipient and will not be disclosed by such outside counsel to employees, officers, or directors of the recipient without the advance consent of the Party providing such materials. Subject to applicable Law, the Parties will consult and cooperate with each other in connection with any analyses, appearances, presentations, memoranda, briefs, arguments, and proposals made or submitted to any Governmental Authority regarding the contemplated transactions by or on behalf of any Party.

(xii) The Parties shall have mutually agreed to the initial business plan of the Company covering the same periods as the Initial Budget (the "Initial Business Plan") prior to the Effective Date.

This Agreement, together with the Company Organization Documents, the Bayer Services Agreement, the CRISPR Services Agreement, the CRISPR IP Contribution Agreement, the Bayer IP Contribution Agreement, the Option Agreement, the Subscription Agreement, the Cross-License Agreement, the Intellectual Property Management Agreement and the Subsidiary Organization Documents, shall be referred to herein as the "Transaction Documents." The date on which the actions set forth in

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Sections 3.2(a) and (b) are complete (other than with respect to clause (ii), which shall only require the payment of the First Installment by Bayer and the CRISPR Initial Contribution), unless otherwise waived by the Parties each acting in their sole discretion, and any applicable waiting periods (and any extensions thereof) under the HSR Act have expired or otherwise been terminated (collectively, the "Closing Conditions") shall be the "Effective Date". The Effective Date shall (i) occur as promptly as practicable following the satisfaction (or waiver in accordance with the preceding sentence) of each Closing Condition (other than the payment of the First Installment by Bayer and the CRISPR Initial Contribution, which will occur on the Effective Date), which shall occur no later than […***…] Business Days following such satisfaction, and (ii) occur no later than March 15, 2016 (or such date thereafter as is mutually agreed to by the Parties in writing) (the "Outside Date"). The Bayer Services Agreement, the CRISPR Services Agreement, the CRISPR IP Contribution Agreement, the Bayer IP Contribution Agreement, the Option Agreement, the Cross-License Agreement and the Intellectual Property Management Agreement shall only become effective on the Effective Date upon the satisfaction (or waiver) of all of the Closing Conditions. The Parties shall use reasonable best efforts to come to agreement on the forms of Transaction Documents not entered into on the date hereof as promptly as practicable, and in any event, prior to the Outside Date. If the Effective Date does not occur on or prior to the Outside Date, each Party may terminate this Agreement at its sole discretion by delivering written notice to the other Party. As a consequence, this Agreement shall be of no further force and effect (including any term that survives a termination of this Agreement pursuant to Section 16.1 (including Section 16.2), other than as set forth in Section 16.3).

3.3 *Participation by Affiliate*

The Parties acknowledge and agree that each Party may choose not to hold its equity ownership interest in the Company (collectively, the "Interests") directly, but rather indirectly through an Affiliate of such Party; provided, that in any event, such Party shall remain obligated to perform all of its obligations under the Transaction Documents to which it (or an Affiliate) is a party; provided, further that any such transfer of Interests to any such Affiliate shall not result in tax treatment that is inconsistent with that set forth in the Tax Appendix. The Parties acknowledge and agree that the Company may, subject to Section 7.9, form Local Operating Entities from time to time provided that such Local Operating Entity is wholly-owned (directly or indirectly) by the Company.

3.4 *Commercially Reasonable Efforts*; *Further Assurances*

Following the Effective Date and during the Term, the Parties shall take actions to promote, develop and achieve the Objectives using Commercially Reasonable Efforts, unless otherwise provided in this Agreement or another Transaction Document, and in accordance with the terms and conditions of this Agreement and the applicable Transaction Document.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

3.5 *Reserved*

3.6 *Non-Compete*

(a) During the Term: Activities Outside the Collaboration. During the Term, except as set forth in this Agreement, the Option Agreement, the other Transaction Documents or pursuant to an Opt-In Transaction, neither Party nor any of its Affiliates, either alone or through any Third Party, shall Develop, Commercialize or otherwise Exploit any Competing Product in the Fields in the Territory; *provided* that either Party can develop, commercialize or otherwise Exploit any other product in the Territory in or outside the Fields (except as set forth in the last sentence herein or as otherwise provided for herein or the other Transaction Documents); *provided*, *further*, that in no event shall the Development, Commercialization or other Exploitation of a Competing Product Targeting an Immunogenicity Target, a Covered Target or a Third-Party Target be considered a breach of this Section 3.6(a). In addition, during the Term, except as set forth in this Agreement, the Option Agreement, the other Transaction Documents or pursuant to an Opt-In Transaction, neither Bayer nor any of its Affiliates, either alone or through any Third Party, shall in-license, acquire, develop or commercialize CRISPR/Cas based products outside the Fields for Human Therapeutic Use.

(b) Non-Compete Post Opt-In and Termination.

(i) In the event that CRISPR consummates an Opt-In Transaction with respect to a particular Licensed Product pursuant to the Option Agreement, then during the period until such time, if any, as such Licensed Product is no longer being clinically developed, Commercialized or otherwise Exploited by or on behalf of CRISPR, its Affiliates or Sublicensees (the "Bayer Non-Compete Period"), Bayer shall, and shall procure that its Affiliates will, not, directly or with or through a Third Party, Develop, Commercialize or otherwise Exploit any product comprising Crispr/Cas Technology Targeting the same Target that is Targeted by such Licensed Product in the Opt-In Fields applicable to such Opt-In Transaction ([…***…]) in any part of the Territory.

(ii) In the event that Bayer consummates an Opt-In Transaction with respect to a particular Licensed Product pursuant to the Option Agreement, then during the period until such time, if any, as such Licensed Product is no longer being clinically developed, Commercialized or otherwise Exploited by or on behalf of Bayer, its Affiliates or Sublicensees in the particular Bayer Field in the Territory (the "CRISPR Non-Compete Period"), CRISPR shall, and shall procure that its Affiliates will, not, directly or with or through a Third Party, Develop, Commercialize or otherwise Exploit any product comprising Crispr/Cas Technology Targeting the same Target that is Targeted by such Licensed Product in the Opt-In Fields applicable to such Opt-In Transaction (together with any Cross

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Field Expansions) in any part of the Territory; *provided*, that in no event shall the Development, Commercialization or other Exploitation of any Crispr/Cas Technology in connection with Targeting a Covered Target, a Third-Party Target or an Immunogenicity Target be considered a breach of this Section 3.6(b)(ii).

(iii) In the event that CRISPR terminates this Agreement pursuant to Section 16.1(b), 16.1(c) or 16.1(h), then during the period starting on the date of such termination becoming effective until the […***…] anniversary of such termination, Bayer shall, and shall procure that its Affiliates will, not, directly or with or through a Third Party, Develop, Commercialize or otherwise Exploit any Competing Product in the CRISPR Field in any part of the Territory.

(iv) In the event that Bayer terminates this Agreement pursuant to Section 16.1(b), 16.1(c) or 16.1(h), then during the period starting on the date of such termination becoming effective until the […***…] anniversary of such termination, CRISPR shall, and shall procure that its Affiliates will not, directly or with or through a Third Party, Develop, Commercialize or otherwise Exploit any Competing Product in the Bayer Field in any part of the Territory; *provided*, that in no event shall the Development, Commercialization or other Exploitation of a […***…] be considered a breach of this Section 3.6(b)(iv).

(v) If a Third-Party licenses a Licensed Product from the Company pursuant to Schedule 3.2(b)(vi) or otherwise, the license agreement between the Company and such Third Party shall contain a non-competition provision consistent with the restrictions in Section 3.6(b)(i) and (ii) binding on the Company, the Local Operating Entities and each of the Parties.

(vi) In the event that a Licensed Product is no longer being clinically developed, Commercialized or otherwise Exploited by or on behalf of a Party that consummated an Opt-In Transaction with respect to such Licensed Product, its Affiliates or Sublicensees in the Opt-In Field applicable to such Opt-In Transaction (together with any Cross Field Expansions) in the Territory, such Party shall, during any period in which the restrictions of Section 3.6 (b)(i) and (ii) remain in effect with respect to the other Party, immediately provide written notice thereof to the other Party.

(c) Bayer Gene-Editing Restriction Upon Termination. Upon termination of this Agreement by CRISPR pursuant to Section 16.1(b), 16.1(c) or 16.1(h) becoming effective and for […***…] thereafter, Bayer shall, and shall procure that its Affiliates will, not, directly or with or through a Third Party, in-license or acquire any Competing Technology.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(d) CRISPR Restriction Upon Termination. Upon termination of this Agreement by Bayer pursuant to Section 16.1(b), 16.1(c) or 16.1(h) becoming effective and for […***…] thereafter, CRISPR shall, and shall procure that its Affiliates will, not, directly or with or through a Third Party, out-license or sell any Pre-IND Products to any Third Party; *provided*, that in no event shall the out-license or sale of a […***…] be considered a breach of this Section 3.6(d).

(e) A Party (the "NC Affected Party") shall not be considered in breach of this Section 3.6 solely by reason of (i) the acquisition by such Party or one of its Affiliates of a Person with a Competing Product in a Field in the Territory or the acquisition of such Party or one of its Affiliates by a Person with a Competing Product in a Field in the Territory or (ii) the determination by such Party that one of its or its Affiliates' internal product candidates would otherwise constitute a Competing Product in a Field or the acquisition from a Third Party by such Party or its Affiliate of rights to a product that would otherwise constitute a Competing Product in a Field, in each case, if one of the following remedies is provided for (taking into account which of this Section 3.6 would be applicable) (A) with respect to CRISPR as the NC Affected Party, if CRISPR or its Affiliates make available and the other Party and the Company agree to (y) include the offending Competing Product(s) in the licenses granted to the Company and/or to Bayer, as applicable, pursuant to this Agreement, including in particular under the CRISPR IP Contribution Agreement and/or the Cross License Agreement, as applicable, or (z) transfer the offending Competing Product(s) to the Company, in each case on mutually agreeable terms, and (B) with respect to Bayer as the NC Affected Party, if Bayer or its Affiliates makes available and the other Party and/or the Company, as applicable, agree to (y) include the offending Competing Product(s) in the licenses granted to the Company and/or to CRISPR pursuant to this Agreement including in particular under the Bayer IP Contribution Agreement and/or the Cross License Agreement, as applicable, or (z) transfer the offending Competing Product(s) to the Company, in each case on mutually agreeable terms, or (C) if prior to the closing of such acquisition (or as of the date such Party makes a determination as to an internal product candidate), the NC Affected Party commits in writing to the other Party and the Company that, promptly following the closing of such acquisition (or the date such Party makes a determination as to an internal product candidate), it will divest itself or cause its Affiliate to divest itself, of the offending rights and/or activity, and the NC Affected Party uses Commercially Reasonable Efforts to pursue such divestiture, and in the event that such divestiture is not completed within […***…] of the closing of such acquisition, the NC Affected Party shall, at its discretion (i) cease, or cause its Affiliate to cease, all development, manufacturing and/or commercialization, as applicable, of the offending Competing Product(s) in the Fields, (ii) include the offending Competing Product(s) in the licenses granted to the Company and/or the other Party, as applicable, pursuant to this Agreement or (iii) transfer the offending Competing Product(s) to the Company, in each case of (ii) and (iii) on mutually agreeable terms. Other than as set forth above with respect to the acquisition of Competing Products (which the preceding portion of this Section shall apply to), Bayer shall not be considered in breach of Section 3.6(c)

if prior to the closing of an in-licensing or acquisition transaction referred to Section 3.6(c), Bayer commits in writing to CRISPR and the Company that, promptly following the closing of such transaction, it will divest itself, or cause its Affiliate to divest itself, of the offending rights and/or activity, and Bayer and such Affiliate uses Commercially Reasonable Efforts to pursue such divestiture, and in the event that such divestiture is not completed within […***…] of the closing of such acquisition, Bayer ceases, or causes its Affiliate to cease, all development, manufacturing and/or commercialization, as applicable, of the offending rights and/or activity for the term of Bayer's non-compete obligation set forth in Section 3.6(c).

(f) For the avoidance of doubt, a Party shall be responsible for any breach of this Section 3.6 by its Affiliates as if such Affiliate is a party hereto. In addition, each Party shall require its Sublicensees of Intellectual Property made available to such Party or its Affiliates under the Transaction Documents at any time on or after the Effective Date to agree to adhere to such Party's covenants set forth in subsections (b)(i)-(iv), (c) and (d) in its future sublicense agreements and shall use Commercially Reasonable Efforts to enforce such covenants against any of its Sublicensees.

(g) In the event that the covenants contained in Sections 3.6(a) through (f) are more restrictive than permitted by applicable Law, the Parties agree that the covenants contained in Sections 3.6(a) through (f) shall be enforceable and enforced to the extent permitted by applicable Law.

(h) Each Party acknowledges and agrees that the remedy at law for any breach of the requirements of this Section 3.6 would be inadequate, and agrees and consents that, without intending to limit any additional remedies that may be available, temporary and permanent injunctive and other equitable relief may be granted without proof of actual damage or inadequacy of legal remedy in any proceeding that may be brought to enforce any of the provisions of this Section 3.6.

(i) In no event shall the Targets listed on Schedule 3.6(i) (which schedule may be amended from time to time by the unanimous consent of the Members) (the "Excluded Covered Targets") be deemed to be Covered Targets.

(j) For the avoidance of doubt, it shall not be a violation of this Section 3.6 if a Party or one its Affiliates is taking any action, or pursuing the exercise of any right, set forth in this Agreement, the Option Agreement, the other Transaction Documents or pursuant to an Opt-In Transaction.

3.7 *Third-Party Targets*

During the Term, Bayer agrees that CRISPR and its Affiliates may, at its discretion, enter into any Crispr/Cas Technology Target-based transaction with a Third Party (each, a "Third Party Target Transaction") without the consent of Bayer, the Company or any Local Operating Entity and without violating any terms of this Agreement or any other

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Transaction Document provided, that the definitive documentation for such Third Party Target Transaction shall explicitly include language that […***…]. If CRISPR or one of its Affiliates intends to enter into a Third Party Target Transaction during the Term and the Third Party has requested a […***…] be included in such Third Party Target Transaction, CRISPR may request in writing that the Parties, the Company and the applicable Local Operating Entities promptly enter into good faith negotiations to […***…]; provided, that this shall not require that the Company or such Local Operating Entity […***…] without the approval of the Management Board. For the avoidance of doubt, in no event shall this Section 3.7 apply to the Covered Targets under the Existing Third Party Agreement.

In addition, during the Term, CRISPR may, by written notice to Bayer and the Company, request that following the consummation of a Third Party Target Transaction that the Company and the Local Operating Entities shall no longer pursue the Target(s) covered by such Third Party Target Transaction (each, an "Excluded Target"), which shall be determined by the Management Board as promptly as practicable following receipt of such notice. If the Management Board determines that any or all such Targets are Excluded Targets, the Company and the Local Operating entities shall not Develop, Commercialize or otherwise Exploit such Targets and the Company shall provide the Parties written notice of the same.

The Parties agree to cause the Company and the Local Operating Entities to comply with the terms of this Section 3.7.

ARTICLE 4 - DURATION

4.1 *Duration of Joint Venture Agreement*

This Agreement is effective as of the date set out above and shall be of an indefinite duration thereafter, terminating only in accordance with Section 3.2 or Section 16.1. The "Term" shall be from the Effective Date until such termination of this Agreement becoming effective.

ARTICLE 5 - GO VERNANCE OF THE COMPANY

5.1 *Governance Principles*

The Parties shall participate in the governance and management of the Company and the Local Operating Entities in accordance with the following principles but in any event subject to, and in accordance with, the terms and conditions of this Agreement: (i) the Company's and Local Operating Entities' independence from each of the Parties (except as set forth herein, the other Transaction Documents and the Local Operating Agreements), (ii) efficiency, and (iii) observance of high ethical standards.

5.2 *Governance Bodies*

To the extent permitted under applicable Law, the Company shall have the following governance bodies:

(a) The Members as provided for in Article 6;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) The Management Board as provided for in Article 7; and

(c) The Executive Team as provided for in Article 8.

ARTICLE 6 - AUTHORITY OF THE MEMBERS OF THE COMPANY

6.1 *Holding of Meetings of Members*

Meetings of the Members shall be called and convened in accordance with the provisions of the Company Organization Documents. Any action or decision required or permitted to be taken or made by the Members may be made by unanimous written consent in lieu of a meeting as provided in the Company Organization Documents.

6.2 *Powers and Voting*

The approval of both Members (which may be by written consent) shall only be required for the Company or a Local Operating Entity to take any action listed in Schedule 6.2, other matters reserved for the Members as set forth in this Agreement and to the extent mandated by applicable Law.

ARTICLE 7 - MANAGEMENT BOARD

7.1 *Management Board*

Except with respect to those matters expressly reserved to the Members pursuant to Section 6.2 and the day-to-day operation of the Company and the Local Operating Entities, which is reserved for the Executive Team of the Company and, as applicable, the local operating teams, respectively, the Management Board of the Company (the "Management Board") shall have, subject to applicable Law, the exclusive authority to decide upon all matters of the Company, including, without limitation, supervisory management, strategic planning and policy-making responsibilities for the Company. The approval of the Management Board shall only be required for each of the matters listed in Schedule 7.9(b) and other matters reserved to the Management Board as set forth in this Agreement and to the extent mandated by applicable Law.

7.2 *Composition of Management Board*

(a) Subject to Section 7.2(b), the Management Board shall be initially fixed at four (4) members. Prior to the Effective Date, the Parties shall complete all steps necessary to appoint or cause the appointment of the first four (4) members of the Management Board. Bayer shall have the right to appoint two (2) members of the Management Board. CRISPR shall have the right to appoint or cause the appointment of two (2) members of the Management Board.

(b) Once appointed in accordance with Section 8.3, the CEO of the Company shall become a member of the Management Board. So long as the CEO is an employee,

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

officer, director of or otherwise associated with one of the Members (or its Affiliates) (a "Conflicted CEO"), the CEO shall be one of the members of the Management Board appointed by that Member. If the CEO is not an employee, officer or director of one of the Members (or its Affiliates), then the CEO shall become the fifth member of the Management Board but shall have no voting rights.

7.3 *First Members of the Management Board of the Company*

Each Party shall appoint the persons selected by such Party to fill its designees on the initial Management Board prior to the Effective Date. Each Party will provide the other Party written notice of the same prior to the Effective Date.

7.4 *Chairperson of Management Board*

(a) One member of the Management Board shall serve as its Chairperson. The Chairperson shall preside over meetings of the Management Board.

(b) Each Party shall alternately have the right to appoint the Chairperson of the Management Board for a one (1) fiscal year term. The initial Chairperson of the Company shall be Rodger Nowak, or if Rodger Nowak is unable to serve for any reason, then another designee appointed by CRISPR, and will serve until the first meeting of the Management Board following December 31, 2016. Each Party shall make reasonable efforts to reach consensus with the other Party on the person it nominates to the position of Chairperson of the Management Board.

7.5 *Appointment and Replacement of Members of the Management Board*

Each Party shall have the right at any time by written notice to the other Party and to the Company to remove and replace, or fill any vacancy created by the death, resignation or incapacitation of any member of the Management Board appointed by such Party, such change to be effective two Business Days following such notice or on such other day as provided in such notice or otherwise agreed by the Parties, but in no event in any manner as will nullify any action taken by the Management Board prior to the giving of such notice.

7.6 *Holding of Meetings of the Management Board*

(a) The Management Board shall hold meetings at least once each quarter of the calendar year and upon the call of either Party. Written notice stating the place, date and hour of the meeting and the purpose or purposes for which the meeting is called shall be delivered to all members of the Management Board not less than 72 hours before the time of the meeting to the member at his or her address as it appears on the books of the Company in accordance with the notice provisions set forth in Article 22 hereof. When any notice is required to be given to any member of the Management Board, a waiver thereof in writing signed by the member entitled to such notice, whether before, at or after the time stated therein, shall be equivalent to the giving of such notice. Written notice of a meeting of the

Management Board may be waived by any member in writing or by participating in such meeting except for the purpose of objecting to the transaction of any business on the grounds that the meeting is not lawfully called.

(b) A meeting in person of the Management Board may be postponed up to a maximum of 48 hours from the date and hour contained in the written notice related to such meeting in the event of unavoidable travel delays.

(c) In lieu of meeting in person, the Management Board may meet by means of telephone conference or similar communications equipment by means of which all persons participating in the meeting can hear each other.

7.7 *Attendance*

Each of the Parties shall cause the members of the Management Board appointed by it to attend, or be represented at, all properly called meetings of such Management Board. A member of the Management Board may attend in person or by proxy. Such proxy may only be granted to an existing member of the Management Board, a copy of which shall be filed with the Chairperson of such Management Board prior to the voting of such proxy. Each proxy shall be revocable at the pleasure of the member executing it; provided, that, unless a proxy by its terms expressly provides for a specific revocation date, revocation of such proxy shall not be effective unless and until such revocation is executed in writing by the member who executed such proxy and such revocation is filed with the Chairperson of the applicable Management Board prior to the voting of such proxy.

7.8 *Language of Board Meetings*

Meetings of each Management Board shall be conducted in English.

7.9 *Voting of Management Board*

(a) A quorum of the Management Board shall be three voting members (except as otherwise provided for in the Option Agreement). A quorum of the Management Board, once established, shall be deemed present until the meeting for which the quorum was established has been adjourned. In no event, however, shall a member be counted towards the quorum requirement if such member attends the meeting solely for the purpose of contesting the holding of the meeting.

(b) Resolutions of the Management Board taken at a meeting shall be adopted by the affirmative vote of a majority of the voting members of the Management Board (except as set forth in the Option Agreement or as otherwise provided for herein); provided that the matters listed in Schedule 7.9(b) shall require the affirmative vote of at least one member of the Management Board appointed by each Party. Any action or decision required or permitted to be taken or made by the Management Board at a meeting may be made by unanimous written consent in lieu of meeting.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.10 *Non-Delegation by Management Board*

The matters within the competence of the Management Board listed in Schedule 7.9(b) shall be reserved exclusively to such Management Board and shall not be delegated by it.

7.11 *Secretary of Management Board*

The Secretary of the Management Board shall be an attorney appointed each fiscal year by the Party not having appointed the Chairperson for that fiscal year. The initial Secretary of the Company shall be determined by the Parties as soon as reasonably possible after the date hereof.

7.12 *Local Operating Entities*

The provisions in Sections 7.1 to 7.11 shall apply *mutatis mutandis* to each Local Operating Entity to the extent permitted by applicable Law and not inconsistent with the terms of the Tax Appendix.

7.13 *Target Selection Process*

(a) Covered Targets. CRISPR is subject to the Existing Third Party Agreement as of the Effective Date.

(b) Target Selection Process. Bayer, CRISPR and the Company shall each be able to nominate Targets by providing written notice to the Management Board, which notice shall include the indication in the Fields (based on scientific publications and data) for which such Target is expected to be Targeting as determined by Bayer or CRISPR in good faith (except as provided below). If the Management Board approves such nominated Target, such Target shall be included in the Initial Business Plan or the next Rolling Business Plan, as applicable. If there is a dispute within the Management Board as to the indication for such Target (i.e., the proposed Target may have an indication for a different Field than that proposed) or if the Management Board otherwise does not approve the inclusion of such Target, then the matter shall be escalated in accordance with the procedures set forth in Section 12.1.

(c) If CRISPR has reasonably determined that the nominated Target is a Covered Target, CRISPR shall provide the Company and Bayer with written notice, and the Parties acknowledge and agree that (i) such nominated Target may not be approved by the Management Board and (ii) the Company and the Local Operating Entities shall not undertake research or Development activities (or otherwise Commercialize or Exploit a Product) directed to such Target. If there is a dispute within the Management Board as to whether such nominated Target is a Covered Target, the Parties shall mutually designate, in their reasonable discretion, a third party law firm ("Third Party Firm") to implement the procedure set forth in this Section 7.13 and determine whether or not the nominated Target is a Covered Target. The decision of the Third Party Firm shall be binding on the Parties. CRISPR shall notify the Third Party Firm of all Targets subject to the

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Existing Third Party Agreement (such list, as amended from time to time by CRISPR, the "Covered Target List"). The Company shall deliver a written notice to the Third Party Firm identifying such nominated Target. The Third Party Firm shall then determine within […***…] Business Days whether such Target is included in the Covered Target List. If a Target nominated by Bayer is included in the Covered Target List, such Target may not be included in the Initial Business Plan or any Rolling Business Plan.

(d) Confidentiality. The identity of any Covered Target identified to Bayer, the Company and the applicable Local Operating Entities under Section 7.13(c) shall be treated as Information and subject to the confidentiality obligations under Article 17 or the other confidentiality obligations under the other Transaction Documents and such Person shall not disclose that such Target is subject to any rights from CRISPR or its Affiliates or the subject of any collaboration with CRISPR or its Affiliates or of any collaboration partner or licensee of CRISPR or its Affiliates.

(e) In no event shall a Party or the Company propose a Target, and the Parties shall ensure that neither the Company nor a Local Operating Entity Develop, Commercialize or otherwise Exploit a Target, that is a […***…] Target. In addition, the Parties shall ensure that in no event shall the Company or a Local Operating Entity Develop, Commercialize or otherwise Exploit any Products for the diagnosis, prevention or treatment of cystic fibrosis. "[…***…] Target" means a Target related to the […***…].

ARTICLE 8 - EXECUTIVE TEAM; HUMAN RESOURCES; BUSINESS PLAN

8.1 *Executive Team*

The day-to-day operations of the Company shall be run by an executive team of individuals who shall be officers of the Company (the "Executive Team"). The day-today operations of the Company shall be run by the Executive Team under the supervision of the Management Board.

8.2 *Chief Executive Officer*

One member of the Executive Team shall hold the position within the Company of Chief Executive Officer ("CEO"). The CEO shall not be the Chairperson of the Management Board without the consent of both Parties.

8.3 *Appointment and Continuance of CEO*

(a) The right to appoint the CEO shall be vested in the Management Board upon the vote required by Section 7.9. The Chairperson of the Management Board shall lead the selection process of the replacement to the initial CEO. The Management Board will consult in the identification of candidates to serve as the CEO and will agree on the appointment of the CEO. Such CEO will be evaluated informally by the Management Board every twelve months. The CEO may be replaced upon the

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

approval of the Management Board, provided that either Party may cause the removal of the CEO for "cause." For purposes of this Section 8.3, a Party shall have "cause" to remove the CEO for (i) habitual drunkenness or drug addiction or willful failure materially to perform and discharge the CEO's duties and responsibilities, or (ii) misconduct that is materially and significantly injurious to the Company or a Local Operating Entity, or (iii) conviction of a felony involving the personal dishonesty of the CEO or moral turpitude, or (iv) conviction of the CEO for any crime or offense involving the property of the Company or a Local Operating Entity. Commencing on the first anniversary date of his or her commencement of service as CEO, and on each anniversary date thereafter, each of Bayer and CRISPR may withdraw its approval of such CEO after reasonable consultation with the other Party. The withdrawal of approval by either Bayer or CRISPR shall cause the selection process for a CEO to recommence as set forth in this Section 8.3.

(b) The initial CEO of the Company shall be Axel Bouchon or, should Axel Bouchon be unable to serve for any reason, the CEO shall be selected as set forth in this Section 8.3; provided, that such initial CEO shall automatically be deemed to resign on the earlier to occur of (i) the selection of the next CEO of the Company in accordance with Section 8.3 and (ii) three (3) months following the Effective Date. The Management Board may unanimously decide to extend the tenure of the initial CEO in such capacity beyond the period mentioned in the previous sentence. The Parties shall take all such required action to effectuate the resignation of the initial CEO as contemplated hereby.

8.4 *Other Officers of the Company*

(a) The CEO of the Company may at his or her option appoint other persons to serve as officers of the Company or designate other persons to serve as officers of a Local Operating Entity, including members of the Executive Team; provided that any such selection and the compensation provided to any such officer is in compliance with the guidelines to be determined by the Parties as soon as reasonably possible after the date hereof but prior to the Effective Date. The CEO may appoint, remove and replace such officers from time to time and they will work under the day-to-day supervision and control of the CEO. Notwithstanding the foregoing, for so long as the CEO is a Conflicted CEO (including the initial CEO), any such decision with respect to the officers, including the hiring of any such officer, shall require the unanimous approval of the Management Board.

8.5 *Role of Executive Team*

The CEO and other members of the Executive Team shall have the power and authority to take actions and make decisions in respect of all those matters not otherwise reserved to the Members or the Management Board pursuant to this Agreement or in the Company Organization Documents to the extent permitted by applicable Law. Notwithstanding the foregoing, the initial CEO shall consult with the Management Board with respect to any and all material decisions regarding the Company so long as he is appointed in such capacity, including any decision regarding Related Party Transactions involving Bayer or one of its Affiliates.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

8.6 *First Members of the Executive Team of the Company*

The first individuals named to the Executive Team of the Company shall be the persons nominated and appointed in accordance with Sections 8.3 and 8.4. The Management Board shall determine the positions to be held by the initial Executive Team as promptly as practicable after the date hereof, and in any event, prior to the Effective Date.

8.7 *Remuneration*

The remuneration of the members of the Executive Team, should any of them become employees of the Company or a Local Operating Entity pursuant to Section 8.10, shall require the approval of the Management Board in the case of the CEO, but otherwise the approval of the CEO to the extent such remuneration is in compliance with the guidelines developed as set forth in Section 8.4(a) (and otherwise, will require the approval of the Management Board). To the extent the CEO or any other member of the Executive Team is an employee of a Party who is seconded to the Company, such Party shall fix such individual's salary. The Company shall reimburse the seconding Party in accordance with the terms of a secondment agreement. Notwithstanding the foregoing, for so long as the CEO is a Conflicted CEO (including the initial CEO), any such decision with respect to the officers shall be made by the Management Board. In addition, the initial CEO of the Company shall not receive any remuneration for serving in such capacity (or his resignation) without the prior approval of the Management Board.

8.8 *Executive Team Reports to the Management Board*

The Executive Team, through the CEO, shall report to, and shall at all times be subject to the direction of, the Management Board. Without limiting the generality of the foregoing, the Executive Team shall prepare and submit to the Management Board and the Members quarterly reports, in reasonable detail, on the operations of the Company and all applicable Local Operating Entities, as soon as available and, in any event, within thirty (30) days after the end of each calendar quarter (including the last). Such reports shall include quarterly consolidated financial statements (including an unaudited profit and loss statement, balance sheet and cash flow statement) of the Company and each Local Operating Entity for the applicable quarter and the fiscal year-to-date period prepared in accordance with U.S. GAAP and IFRS, setting forth in each case in comparative form the actual, budgeted and prior year figures for the corresponding quarter and the corresponding fiscal year-to-date period.

8.9 *Human Resources*

(a) Transfer of Employees. The initial conditions of service of Company and any Local Operating Entity personnel are to be determined by the Management Board. If at any time the Company or a Local Operating Entity desires to accept transfers of employees from the Parties or their Affiliates to become Company or Local Operating Entity employees, the Parties intend that, as soon as practical thereafter, the human resources policies of the Company and each Local Operating Entity will be determined by the Management Board.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) Employment Liabilities. If at any time the Company or a Local Operating Entity desires to accept transfers of employees from the Parties or their Affiliates, the Parties or their Affiliates will calculate the monetary value of all long term personnel liabilities which are to be transferred to the Company or the Local Operating Entity as a result of negotiations between the Parties or their Affiliates and the employees. These may include such liabilities as pension fund, long service awards and leave, share options, loan guarantees, medical aid and employee savings plans, and such other liabilities as may be agreed to by the Parties or their Affiliates after full disclosure and completion of due diligence by each Party or its Affiliates. All personnel liabilities not transferred to the Company or a Local Operating Entity will remain the responsibility of the Party or its Affiliates. Notwithstanding anything in this Section 8.9 to the contrary, the approval of the Management Board shall be required to assume employment liabilities described herein.

(c) Secondments. The Parties agree that it would be in the best interests of the Parties, the Company and each Local Operating Entity to allow the secondment of the Parties' or its Affiliates' employees (the "Seconded Employees") with the requisite skills and availability to the Company or a Local Operating Entity after the Effective Date in accordance with policies to be set forth by the applicable Management Board. The Parties will identify and allow the secondment of personnel to the Company or a Local Operating Entity in accordance with a secondment agreement to be agreed. The CEO shall have the authority to terminate the secondment agreement of any seconded employees without the consent of the Management Board or the Parties.

(d) IP Matters. As between the (i) Company and the Local Operating Entities, on the one hand, and (ii) CRISPR or Bayer (and their respective Affiliates), on the other hand (each a "Primary Employer"), the Company and each Primary Employer agree that (i) any Seconded Employee's works of authorship, discoveries, inventions and innovations resulting from the services performed by such Seconded Employees for the Company or a Local Operating Entity, or (ii) any proposals, research, records, reports, recommendations, manuals, findings, evaluations, forms, reviews, information, data, computer programs and software originated or created by any Seconded Employee for the Company or a Local Operating Entity or in the performance of such services (such items being hereinafter referred to collectively and severally as "Work Product"), in each case which is an original work of authorship, including but not limited to any computer program or software, is a "work made for hire" within the meaning of 17 United States Code Section 101 in that it is a work that has been specially ordered or commissioned by the Company or such Local Operating Entity for use as a contribution to a collective work, as part of an audiovisual work, as a translation, as a supplementary work, as a compilation and/or as an instructional text. To the extent any Work Product is not a "work made for hire," each Primary Employer

hereby agrees to take all action to assign, and to have the Seconded Employees assign, to the Company or such Local Operating Entity all right title and interest in and to such Work Product, including all intellectual property rights therein or based thereon. Notwithstanding the foregoing or anything else herein to the contrary, the rights and obligations under this Section 8.9(d) and the final allocation of ownership with respect to any Work Product (including all intellectual property rights therein) shall be allocated in accordance with, and remain subject to, in all cases the terms and conditions of the Intellectual Property Management Agreement.

8.10 *Local Operating Entities*

The provisions in Sections 8.1 through 8.8 shall apply *mutatis mutandis* to each Local Operating Entity to the extent permitted by applicable Law and not inconsistent with the terms of the Tax Appendix.

8.11 *Business Plans*; *Budgets*

(a) The initial operational budget (the "Initial Budget") and the initial investment budget (the "Initial Investment Budget"), in each case for a period from the date hereof through December 31, 2017, shall be attached hereto as Schedule 8.11 to this Agreement. The Initial Business Plan shall be attached to Schedule 8.11 on or prior to the Effective Date. The Parties acknowledge and agree that the Initial Business Plan, the Initial Budget and the Initial Investment Budget may, upon the approval of the Management Board as set forth in Section 7.9, be amended as appropriate.

(b) On or about […***…] of each fiscal year starting in 2016, the Management Board shall begin discussions regarding the 24-month operational budget for the 24-month period starting on January 1st of the next fiscal year (each, a "Rolling Budget"), an investment budget for the same period (each, a "Rolling Investment Budget") and a business plan for the same period (each, a "Rolling Business Plan"). Each Party shall cause its designees on the Management Board to use reasonable best efforts to obtain the required approval of the Management Board of such Rolling Budget, such Rolling Investment Budget and such Rolling Business Plan until such approval is obtained. If, pursuant to Section 7.9, the Management Board fails to approve an updated Rolling Business Plan, Rolling Budget and Rolling Investment Budget for a fiscal year by […***…] of the prior fiscal year, then the matter shall be escalated in accordance with the procedures set forth in Section 12.1. Once such Rolling Business Plan, such Rolling Budget and such Rolling Investment Budget have been approved, CRISPR designated members of the Management Board shall have final approval with respect to funds allocations to Targets in the CRISPR Fields and the Bayer designated members of the Management Board shall have final approval with respect to funds allocations to Targets in the Bayer Fields.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(c) Once a Rolling Budget and each Rolling Business Plan for any fiscal year is approved pursuant to Section 7.9 by the Management Board, the Executive Team shall manage the Company and each Local Operating Entity according to industry best practices in a commercially reasonable manner to endeavor to achieve the Rolling Budget and each Rolling Business Plan for such fiscal year.

(d) Each Rolling Budget shall include, for informational and planning purposes only, a good faith estimate of the costs required for the Dissolution. Such estimate shall be as detailed as the Management Board determines is appropriate following reasonable analysis. Such costs shall include costs such as lease termination, employee severance and termination and contract termination costs. For the avoidance of doubt, such costs shall not be funded unless and until they are required to be funded in connection with the Dissolution.

(e) If the applicable Rolling Investment Budget is not approved in accordance with Section 8.11(b) prior to […***…] of the fiscal year immediately preceding the period covered by such Rolling Investment Budget, the amount allocated for investment activities for the first fiscal year covered by such Rolling Investment Budget shall be deemed to equal the amount allocated in the Rolling Investment Budget for the immediately preceding fiscal year and for the second year covered by such Rolling Investment Budget shall be deemed to equal the amount for such first fiscal year; provided, that, if such Rolling Investment Budget is later approved in accordance with Section 8.11(b), the allocated amounts shall thereafter equal the respective amounts approved for investments in such Rolling Investment Budget.

ARTICLE 9 - FUNDING

9.1 *Committed Cash Contributions*

(a) Committed Cash Contributions (Capital). As of the date hereof, the aggregate committed cash contributions of each Party to the capital of the Company (which is comprised of its Initial Contribution and its Additional Contribution) are as follows: (i) with respect to CRISPR, US $100,000; and (ii) with respect to Bayer, US $300,000,000 (the "Bayer Commitment Amount"). The Bayer Commitment Amount is to be understood as paid-in capital with deferred payment terms. Each cash contribution to the capital of the Company shall be payable in immediately available funds (in US dollars) pursuant to wire transfer instructions provided to the paying Party prior to the contribution date. In the event that any Party does not make its Initial Contribution set forth on Schedule 3.2(b)(ii) or any additional contribution (including any Additional Contribution) when due, such Party shall be in material breach of this Agreement and the other Party may seek any remedy provided for in this Agreement, which provides that such Party shall first have the ability to cure the breach as set forth in Section 19.1(a); thereafter, such other Party may terminate this Agreement in accordance with Section 16.1(c) and/or pursue any other remedy provided for herein. The Company shall provide Bayer and CRISPR, as the case may be, a written invoice including due date for any capital contribution required to be made to the Company hereunder in advance of the date of such contribution.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) Initial Contributions. Upon receipt of the first installment of the Initial Contributions by the Company from each Party and the execution by CRISPR of the CRISPR IP Contribution Agreement, each Party shall have a 50% Interest in the Company and 50% of the voting rights therein. The second installment of the Initial Contribution by Bayer shall occur within […***…] of the provision of Evidence Related to Global Filings.

(c) Additional Contributions

(i) "Additional Contribution" shall mean an additional cash contribution by a Party to the capital of the Company following its Initial Contribution. As of the date hereof, the aggregate amount of the Additional Contributions to be made by Bayer pursuant to this Agreement shall equal, and not exceed without its consent, the Bayer Commitment Amount minus its Initial Contribution (the "Bayer Additional Contribution Cap"). As of the date hereof, CRISPR shall not be responsible for any Additional Contribution. Each Additional Contribution made to the Company shall not alter Bayer's 50% Interest in the Company or its 50% voting rights in meetings of the Members. For the avoidance of doubt, in no event shall Bayer be required to make an Additional Contribution without its consent (including pursuant to Section 9.1(d)) until CRISPR provides the Evidence Related to Global Filings; provided, that, if any amounts would otherwise have become due under clause (ii) of this Section 9.1(c) prior to such provision of the Evidence Related to Global Filings, any such Additional Contribution(s) shall be made in conjunction with the second installment of the Initial Contribution.

(ii) Bayer shall make an Additional Contribution following the occurrence of any of the following triggers, in an amount calculated and otherwise payable in accordance with the following:

(1) Budget Funding. The Parties agree that the Initial Contributions are intended to fund the Initial Budget. Within […***…] following the approval of each Rolling Budget in accordance with Section 8.11(b), written notice (with respect to such Rolling Budget, a "Budgetary Funding Notice") shall be provided by the CEO to the Parties which details the following: (x) the cash requirements of the Company and the Local Operating Entities based on such Rolling Budget (with respect to such Rolling Budget, the "Cash Requirements"); (y) the expected available cash of the Company and the Local Operating Entities as of January 1st of the first fiscal year covered by such Rolling Budget (with respect to such Rolling Budget, the "Expected Cash"); and (z) the difference between such Cash Requirements and such Expected

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Cash (with respect to such Rolling Budget, the "Additional Budgetary Funding Amount"). Bayer shall make an Additional Contribution equal to the Additional Budgetary Funding Amount as promptly as practicable (and in any event within […***…]) of its receipt of the Budgetary Funding Notice. Notwithstanding the foregoing, if the applicable Rolling Budget is not approved in accordance with Section 8.11(b) prior to […***…] of the fiscal year immediately preceding the period covered by such Rolling Budget, the Cash Requirements for such Rolling Budget shall be deemed to equal […***…] of the Cash Requirements for the immediately preceding fiscal year (the "Deemed Cash Requirements") and the CEO shall deliver the Budgetary Funding Notice assuming the Deemed Cash Requirements; provided, that, if such Rolling Budget is later approved and the actual Cash Requirements are greater than the Deemed Cash Requirements, the CEO shall submit another Budgetary Funding Notice to the Parties as promptly as practicable following such approval with an Additional Budgetary Funding Amount equal to the actual Cash Requirements minus the Deemed Cash Requirements.

(2) Acquisition Transaction Funding. From time to time, the CEO may provide written notice (a "CEO Acquisition Notice") to the Parties of a proposed acquisition of tangible and/or intangible assets (including Intellectual Property) directly relating to or that would be complementary to the Business (an "Acquisition Transaction"), which may take the form of a license of such assets to the Company and/or a Local Operating Entity or the purchase of assets or an entity/entities, that are covered by the Initial Investment Budget or the Rolling Investment Budget, as applicable, and not explicitly covered by the Initial Budget or the Rolling Budget, as applicable. Such CEO Acquisition Notice shall detail the cash contribution amount required to effectuate such Acquisition Transaction (the "Acquisition Transaction Funding Amount"), a summary of the assets to be acquired and the owners thereof and the date that funds would be required to consummate such Acquisition Transaction (the "Acquisition Transaction Funding Date"); provided, that if additional consideration (an "Acquisition Transaction Additional Funding Amount") is required to be paid by the Company or a Local Operating Entity for any such asset after the applicable Acquisition Transaction Funding Date (an "Acquisition Transaction Additional Payment") that (A) would require […***…] or (B) […***…], the prior written consent of the Parties shall be required for such Acquisition Transaction, which consent shall not be unreasonably withheld, conditioned or delayed. Bayer shall make an Additional Contribution equal to (i) the Acquisition Transaction Funding Amount on or prior to the Acquisition Transaction Funding Date (provided, that if the

Acquisition Transaction Funding Date is less than […***…] Business Days after Bayer's receipt of the CEO Acquisition Notice, the Company or a Local Operating Entity may fund the Acquisition Transaction with available cash and Bayer shall fund the Acquisition Transaction Funding Amount to the Company as promptly as practicable (and in any event within […***…] Business Days of its receipt of such CEO Acquisition Notice)) and (ii) the Acquisition Transaction Additional Funding Amount as promptly as practicable (and in any event within […***…] Business Days of its receipt of written notice from the CEO of the applicable Acquisition Transaction Additional Payment). Without the prior written consent of the Parties, in no event shall Bayer be required to make Additional Contributions pursuant to this Section 9.1(c)(ii)(2) in excess of an amount equal to […***…] of the amount set forth in the Initial Investment Budget or the Rolling Investment Budget, as applicable (the "Investment Cap").

(3) Management Board Approved Funding. The Management Board may approve additional funding of the Company from time to time in accordance with Article 7. The Company shall provide the Parties with written notice of such approval as promptly as practicable following such approval. Bayer shall make an Additional Contribution equal to the amount so approved by the Management Board as promptly as practicable (and in any event within ten (10) Business Days) of its receipt of such notice.

(iii) Provided that this Agreement is not terminated in accordance with Section 16.1 by […***…] (the "Funding Outside Date"), Bayer shall make an Additional Contribution on the Funding Outside Date equal to the Bayer Additional Contribution Cap minus the aggregate amount of all Additional Contributions made by Bayer prior to the Funding Outside Date.

(d) Acquisition Transactions Prior to […***…]

(i) At any time prior to […***…], if the Management Board determines that it is advisable for the Company or a Local Operating Entity to acquire, through license or otherwise, any Intellectual Property or technology from a Third Party, the CEO (or during the tenure of the initial CEO, any member of the Management Board) may provide a CEO Acquisition Notice to the Company and the Parties with respect to such Intellectual Property or technology; provided, that in no event shall the amount required to fund such acquisition (together with other amounts funded under this Section 9.1(d)(i)) exceed the […***…]. Upon its receipt of such CEO Acquisition Notice, […***…] (A) shall have the option, but not the obligation, to […***…] and (B) agrees to promptly present such acquisition to the […***…].[…***…] shall provide the Company and CRISPR written notice of its decision of whether to […***…] within […***…] Business Days of its receipt of such CEO Acquisition Notice.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(1) If […***…] agrees to […***…], it shall make such […***…] as promptly as practicable (and in any event within […***…] of it providing the written notice of its decision).

(2) If […***…] does not agree to […***…],[…***…] shall have the option, but not the obligation, to […***…] the Company the required amount on customary terms […***…]. All […***…] would become […***…] within […***…] Business Days of […***…]. The […***…] shall be […***…] as an […***…] as contemplated by the last sentence of […***…].

(ii) For the avoidance of doubt, following […***…], this Section 9.1(d) shall no longer apply and the other provisions of Section 9.1 shall control all […***…].

9.2 *Future Funding*

Except as otherwise provided in this Article 9 and Section 6.2, all financing beyond the capital contributions set forth in Section 9.1 shall be approved by the Management Board in accordance with Section 7.9.

9.3 *Further Capital Contributions*

No Party shall be required to provide any cash contributions to the capital of the Company without its consent other than those forming part of the Initial Contributions and the Additional Contributions as well as funding approved in accordance with Sections 9.2, 9.5 and 16.2(b).

9.4 *Total Capital of the Company*

For the avoidance of doubt, the total capital of the Company consists of the total cash contributions of the Parties, i.e. the Initial Contributions and the Additional Contributions, as well as the rights licensed to the Company under the CRISPR IP Contribution Agreement.

9.5 *Procedure for Excess Funding*

(a) If, at any time after Bayer has provided to the Company its Initial Contribution and all Additional Contributions required hereunder (the "Initial Period"), the Company's and the Local Operating Entities' operating income and cash on hand is expected to be insufficient to fund its working capital requirements for the next […***…] period, as certified by the CEO to each Member in writing, the Management Board shall, within […***…] days following the CEO's certification, discuss in good faith, and in accordance with the principle set forth in Section 9.1, the most appropriate methods of obtaining financing for the Company and the Local Operating Entities.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

If (i) the Management Board cannot unanimously agree to a method of obtaining financing for the Company within […***…] following the CEO's certification or (ii) the Company cannot obtain any financing approved by the Management Board in accordance with Section 7.9 to fund its working capital requirements within […***…] following the CEO's certification, then the matter shall be escalated in accordance with the procedures set forth in Section 12.1. If (x) a method of obtaining financing for the Company is not determined within […***…] following such escalation or (y) the Company cannot obtain any financing approved by the Management Board in accordance with Section 7.9 to fund its working capital requirements within […***…] following such escalation, either Party shall have the right to terminate this Agreement pursuant to Section 16.1(g) from such earlier date until the CEO provides each Member a further certification in writing that the Company's and the Local Operating Entities' operating income and cash on hand (including any cash receiving in connection with financings approved by the Management Board in accordance with Section 7.9) is expected to be sufficient to fund its working capital requirements for the next […***…] (such period during with a Party may terminate this Agreement pursuant to Section 16.1(g), the "Funding Shortfall Termination Period").

9.6 *Allocation of Cash Contributions to the Capital of the Company*

Unless otherwise approved by the Management Board in accordance with Section 7.9 or as expressly set forth in the Initial Budget or a Rolling Budget, the funding of the Company shall be allocated […***…] to the Development of Products and technology in the Bayer Fields and CRISPR Fields; provided, that there shall be no categorical split within the Bayer Fields or the CRISPR Fields and shall only be subject to the approvals otherwise set forth in Section 8.11(b); provided, further that Bayer and CRISPR shall nominate Targets in accordance with the procedures set forth in Section 7.13 in connection with developing the Initial Business Plan and the Rolling Business Plan, as applicable; provided, further, that in each Rolling Budget covering a period starting on […***…], such Rolling Budget shall provide that at least […***…] of the amount allocated under such Rolling Budget shall be allocated to the Development of Products and technology for […***…] unless otherwise agreed to by the Management Board.

ARTICLE 10 - DISTRIBUTIONS

10.1 *Distributions*

The Parties hereby agree to cause the Management Board to declare and pay distributions to the Members in accordance with the provisions of the Company Organization Documents, which will set forth the mechanics for the allocations of profits and losses of the Company to each Member. The Company Organization Documents shall provide that all proceeds from the Opt-In Transactions as well as other out-license, sale or other

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

similar transaction shall, unless otherwise agreed to by the Parties or otherwise prohibited by applicable Law, be paid equally to the Parties net of transaction costs (such as legal, accounting, investment banking fees as well as transaction and incentive bonus payments); provided, that upon the start of Dissolution proceedings or the termination of this Agreement becoming effective, the Management Board may determine to use such proceeds to pay any costs of such Dissolution or termination.

ARTICLE 11 - TRANSFERS OF INTERESTS

11.1 *Transfers*

Neither Party shall Transfer any or all of its Interest or any right attaching to such Interest, except as permitted by the terms of this Article 11 and the Company Organization Documents. Any attempted Transfer by a Party that is not permitted by the terms of this Agreement and the Company Organization Documents shall be null and void and of no force or effect.

11.2 *Substitution of Affiliates*

(a) The Parties may Transfer any or all of their respective Interests to any of their respective Affiliates or a successor company as the result of an internal corporate reorganization, provided that:

(i) The ownership of such Interests by the Affiliates shall be subject to all the conditions and obligations set forth in this Agreement, the other Transaction Documents and the applicable Local Operating Agreement;

(ii) Such Party shall remain primarily liable for any obligations of such Party under the Transaction Documents and with respect to such Interests;

(iii) Prior notice providing reasonable details of the proposed Transfer shall be provided to the other Party in writing at least fifteen (15) days prior to the completion of the Transfer; and

(iv) That any such Transfer shall not result in tax treatment that is inconsistent with that set forth in the Tax Appendix.

(b) Any Interest that is held by an Affiliate of a Party shall for all purposes of this Agreement be treated as an Interest held by such Party.

11.3 *Transfer in Connection with Sale of All or Substantially all of the Assets of a Party*

A Party may Transfer to a Third Party all of its Interests it owns directly or indirectly in accordance with the terms of this Section if such Transfer is part of a Change of Control, whether through the sale of all or substantially all of the assets of such Party and its Affiliates or otherwise (a "Permitted COC Transfer"). Nothing in this Section 11.3 shall deem any transaction herein […***…].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11.4 *Transferee Acceptance of Conditions*

As a condition precedent to the Transfer of any Interests permitted under Section 11.3, any Third Party that thereby acquires any Interests shall have previously agreed in writing to be bound by all the obligations of this Agreement, the Transaction Documents to which such Party is a party and the Local Operating Agreements, and shall have previously delivered to the non-disposing Party a true copy of such agreement.

11.5 *Notice to the Management Board of Transfer*

Any Transfer to a Third Party pursuant to Section 11.3 shall be notified to the other Party, the Management Board and each Local Operating Entity in writing at least […***…] days prior to the completion of such Transfer.

11.6 *Further Restrictions*

Except as permitted under Sections 11.2 and 11.3, no new Members shall be admitted to the Company until the Funding Outside Date, unless approved unanimously by the Members, and thereafter any new Member shall be approved in accordance with Section 7.9.

ARTICLE 12 - DEADLOCK; CONCILIATION

12.1 *Deadlock in the Management Board and Between the Members*

If a matter is required to be escalated by any term of this Agreement pursuant to Section 12.1, the matter shall be referred to the head of Bayer AG's Head of R&D and CRISPR's Chief Executive Officer for resolution. Such individuals shall use reasonable best efforts to resolve such matter and come to agreement within […***…] after referral of such matter to them. If such individuals do not resolve such matter and come to agreement in such […***…] period, then the proposed action shall not be taken or deemed approved, unless otherwise specified in this Agreement. If such individuals resolve such matter and come to agreement in such […***…] period, each Party shall cause its designees on the Management Board to take such actions as are reasonably required to effectuate such resolution and agreement as promptly as practicable thereafter.

ARTICLE 13 - BOOKS, ACCOUNTING AND FINANCIAL STATEMENTS AND FISCAL YEAR

13.1 *Books*

The Company and each Local Operating Entity shall keep proper books and records of account which shall be freely accessible to the representatives of both Parties for inspection and copying during the usual business hours of the Company and such Local Operating Entity upon reasonable advance notice.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

13.2 *Accounts*

The Company shall keep books and records of account in accordance with applicable local accounting standards consistently applied.

13.3 *Annual Financial Statements*

The Company and each Local Operating Entity shall prepare and distribute to the Parties as soon as available and in any event within […***…] days after the end of each fiscal year of the Company and each Local Operating Entity audited annual financial statements including a balance sheet of such Local Operating Entity as of such fiscal year-end and related statements of income, cash flows and changes in owners' equity for such year, together with comparisons of the current fiscal year with previous fiscal years, all in reasonable detail, accompanied by normally prepared supporting statements and schedules.

13.4 *Other Financial Statements*

In addition to the reports and statements provided for in Sections 8.8 and 13.3, the Company and each Local Operating Entity shall furnish each Party with such reports and financial statements as may be reasonably requested by such Party, including without limitation information and documents required for the preparation of consolidated financial statements and tax returns of either Party.

13.5 *Fiscal Year*

Unless otherwise approved by the Members, the Company and each Local Operating Entity shall have a fiscal year starting on January 1st and ending on December 31st.

13.6 *Appointment of Auditor*

The Company and each Local Operating Entity shall have an independent auditor, which shall be recommended by the Executive Team and approved in accordance with Section 7.9. Any change in the independent auditor shall be approved at a meeting of the Management Board as contemplated by Section 7.9. The auditor of the Company and each Local Operating Entity shall always be appointed from among firms having a worldwide reputation. The Company and each Local Operating Entity shall have its books and accounts audited by the independent auditor at the end of each fiscal year at the expense of the Company or such Local Operating Entity.

ARTICLE 14 - REPRESENTATIONS AND WARRANTIES

14.1 *Representations and Warranties of CRISPR*

The representations and warranties of CRISPR are attached as Schedule 14.1.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

14.2 *Representations and Warranties of Bayer*

The representations and warranties of Bayer are attached as Schedule 14.2.

ARTICLE 15 - EXPENSES

15.1 *Expenses*

Unless otherwise provided for herein or in another Transaction Document, each of the Parties shall bear its own costs and expenses (including legal fees) incurred in connection with the preparation, negotiation and execution of this Agreement and the performance of its obligations hereunder, unless otherwise provided for herein. The Company Organization Documents shall provide that the termination and wind down costs for the Company and any Local Operating Entities shall be funded (i) first, by the Company from funds available thereto (other than funds intended for distribution to the Parties pursuant to Article 10 hereto) and (ii) second, by the Company by calling additional funds from Bayer as contemplated by and in accordance with Section 16.2(b).

ARTICLE 16 - TERMINATION

16.1 *Termination*

This Agreement shall be terminated upon the occurrence of any of the following events:

(a) The Parties mutually agree in writing to terminate this Agreement;

(b) Upon the occurrence of […***…], at the election of the non-breaching Party upon delivery of written notice to the breaching Party;

(c) Any failure to […***…] that is not cured in accordance with […***…], at the election of the non-breaching Party upon delivery of written notice to the breaching Party;

(d) A Party becomes subject to voluntary liquidation, winding-up or any similar insolvency proceeding or involuntary proceeding which is not dismissed within […***…] days of the commencement thereof, or applies for protection under any bankruptcy, suspension of payments or similar insolvency Laws of any jurisdiction or has a receiver appointed, at the election of the other Party upon delivery of written notice to such Party;

(e) […***…], at the election of the other Party upon delivery of written notice to such Party within […***…];

(f) For Good Cause, at the election of Bayer upon delivery of written notice to CRISPR;

(g) By either Party […***…];

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(h) Upon the occurrence of a Breach of Section […***…] at the election of the non-breaching Party upon delivery of written notice to the Breaching Party; or

(i) During the period starting on the one (1) year anniversary of the Effective Date and ending thirty (30) days thereafter, at the election of Bayer upon delivery of written notice of Bayer's exercise of such election to CRISPR, in the event that CRISPR has not by such anniversary date obtained and provided […***…] ("Evidence Related to Global Filings"). […***…].

In the event of a dispute as to the occurrence of any of the events in Sections 16.1(b), (d), (e), (f) or (h), prior to a Party terminating this Agreement for the occurrence of any such events, such Party shall be required to first comply with the dispute resolution procedures set forth in Section 20.1 and the procedures set forth in Section 19.1, which Cure Period and Resolution Period shall run concurrently and begin on the date of notice of Breach.

16.2 *Results of Termination*

(a) Upon termination of this Agreement for any reason (other than Section 3.2):

(i) Subject to any existing licenses (including any license entered into in connection with an Opt-In Transaction and any licenses between the Company or a Local Operating Entity and a Third Party), all Company CRISPR/Cas Technology will be co-owned by Bayer and CRISPR, with the right to sublicense through multiple tiers, with (A) Bayer receiving an exclusive license for Non-Human Therapeutic Uses and a non-exclusive license for Human Therapeutic Uses in the Bayer Fields and (B) CXX receiving an exclusive license for Human Therapeutic Uses (other than the Bayer Fields) and a non-exclusive license for Human Therapeutic Uses in the Bayer Fields, provided, that if such termination is pursuant to Section 16.1(c) (as a result of a breach by Bayer) prior to Bayer contributing the Initial Contribution in full or Section 16.1(i), all Company CRISPR/Cas Technology will be exclusively owned by CRISPR.

(ii) Subject to any existing licenses (including any license entered into in connection with an Opt-In Transaction and any licenses between the Company or a Local Operating Entity and a Third Party), all Company Optimized Cas Technology will be co-owned by Bayer and CRISPR, with the right to sublicense through multiple tiers, with (A) Bayer receiving an exclusive license for Non-Human Therapeutic Uses and a non-exclusive license for Human Therapeutic Uses in the Bayer Fields and (B) CXX receiving an exclusive license for Human Therapeutic Uses (other than the Bayer Fields) and a non-exclusive license for Human Therapeutic Uses in the Bayer Fields.

(iii) Subject to any existing licenses (including any license entered into in connection with an Opt-In Transaction and any licenses between the Company or a Local Operating Entity and a Third Party), all Company

Non-Product Technology will be co-owned by Bayer and CRISPR with the right to sublicense through multiple tiers, as joint owners of an undivided interest therein.

(iv) Subject to any existing licenses (including any license entered into in connection with an Opt-In Transaction and any licenses between the Company or a Local Operating Entity and a Third Party), all Company Pre-IND Product Technology will be co-owned by Bayer and CRISPR as joint owners of an undivided interest therein; with the right to sublicense through multiple tiers, provided, that if such termination is pursuant to Section 16.1(b) (as a result of a breach by Bayer), 16.1(c) (as a result of a breach by Bayer), 16.1(d) (as a result of CRISPR providing notice of termination), 16.1(h) (as a result of a breach by Bayer) or 16.1(i), all Company Pre-IND Product Technology will be exclusively owned by CRISPR; provided, further, that if such termination is pursuant to Section 16.1(b) (as a result of a breach by CRISPR), 16.1(c) (as a result of a breach by CRISPR), 16.1(d) (as a result of Bayer providing notice of termination), or 16.1(h) (as a result of a breach by CRISPR) all Company Pre-IND Product Technology will be exclusively owned by Bayer. In addition, subject to any existing licenses (including any license entered into in connection with an Opt-In Transaction), all Company Post-IND Product Technology will be owned exclusively by CRISPR following a termination pursuant to Section 16.1(c) prior to Bayer contributing the Initial Contribution in full or Section 16.1(i); provided, that for all other terminations, the Company Post-IND Product Technology shall be licensed in accordance with the terms of the Option Agreement.

(v) For the Intellectual Property covered by (i) through (iv) above all licenses to the Parties and their respective Affiliates in the CRISPR IP Contribution Agreement and the Bayer IP Contribution Agreement will be terminated (except with respect to existing licenses to Third Parties and any licenses entered into in connection with Opt-In Transactions) and each Party will, and shall cause the Company and the Local Operating Entities to, take reasonable steps and to execute any documents to achieve such ownership or co-ownership, as applicable. Except as and to the extent that rights of joint or co-owners cannot be varied, waived or otherwise determined by mutual agreement under applicable Laws of any country, the joint owners of any technology shall have equal and undivided rights therein with the full right to practice and exploit such rights, including without limitation, granting sublicenses and similar right therein, without accounting to, or obtaining the consent of, the other joint owner and any required consents are hereby deemed provided, in all cases.

(vi) After termination of this Agreement and/or liquidation of the Company and during the period of any such co-ownership of the Company CRISPR/Cas Technology, the Optimized Cas Technology, Company Non-Product Technology and Company Pre-IND Product Technology, the

Intellectual Property Management Agreement shall survive in accordance with the terms set forth therein and all prosecution and maintenance and enforcement of such Intellectual Property shall be governed by the Intellectual Property Management Agreement.

(b) Upon the termination of this Agreement, neither Party shall be required to make any further contributions except for any unpaid Additional Contributions and any remaining cash capital in the Company shall be repaid to Bayer and, if the requirements set forth in Section 16.2(d) below are met, CRISPR; provided, that such cash shall be used to pay any costs to dissolve and wind-down the Company and each of the Local Operating Entities (the "Dissolution") prior to any such repayment; provided, further, that Bayer shall fund additional amounts required to effectuate the Dissolution, as determined in the reasonable judgment of the CEO, within […***…] Business Days of written notice of such funding requirement to the Members (provided, that in no event shall Bayer be required to fund amounts to the extent such amounts together with its Initial Contribution and all its Additional Contributions exceed the Bayer Commitment Amount). The Parties agree that following a termination of this Agreement, the Company and the applicable Local Operating Entities shall remain in existence for a period of time to orderly wind-down the Business (including to act as a holding company for purposes of distributing proceeds from Opt-In Transactions) and that the Dissolution of the Company shall occur at the time specified in and in accordance with the Company Organization Documents.

(c) Upon the termination of this Agreement, subject to any survival terms set forth therein, each of the Bayer Services Agreement, the CRISPR Services Agreement, the CRISPR IP Contribution Agreement and the Bayer IP Contribution Agreement shall automatically terminate.

(d) Upon the termination of this Agreement pursuant to Section 16.1(b) (as a result of a breach by Bayer), 16.1(c) (as a result of a breach by Bayer), 16.1(d) (as a result of CRISPR providing notice of termination) or 16.1(h) (as a result of a breach by Bayer), any cash capital remaining in the Company and the Local Operating Entities from the Initial Contributions and the Additional Contributions actually made by […***…] that were allocated to the period ending […***…] in the Initial Budget and the applicable Rolling Budget shall be repaid to […***…], and any such cash capital in excess of such amount to be repaid to […***…] shall be repaid to […***…]. Upon the termination of this Agreement pursuant to any other Section, all such cash capital shall be repaid to […***…].

(e) With respect to the Company and each Local Operating Entity, the termination of this Agreement shall also have the consequences set forth in the Company Organization Documents and the Local Operating Agreement of such Local Operating Entity.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(f) The following terms shall survive a termination of this Agreement pursuant to Section 16.1: Sections 3.6(b) through (j) and 16.2 and Articles 1, 2, 10, 11, 15, 17, 19, 20, 21 and 22.

16.3 *Results of Termination under Section 3.2*

(a) Upon termination of this Agreement under Section 3.2, this Agreement shall forthwith become void and have no effect, without any liability or obligation on the part of either Party under this Agreement, except as set forth in Section 16.3(b), and the termination of this Agreement shall not relieve any Party from any liability for fraud or any intentional or willful breach of any covenants or agreements set forth in this Agreement occurring prior to such termination.

(b) The following terms shall survive a termination of this Agreement pursuant to Section 3.2: Sections 16.3 and Articles 1, 2, 17, 21 and 22.

16.4 *No Implied Licenses*

For the avoidance of doubt, no licenses or other rights under any intellectual property rights are granted under this Agreement, by implication, necessity or otherwise, except as expressly set forth herein.

ARTICLE 17 - CONFIDENTIALITY AND PRESS RELEASES

17.1 *Confidentiality*

Each Party shall, and shall cause its Affiliates to, keep confidential any oral or written, tangible or intangible, proprietary or confidential information ("Information") of the other Party or its Affiliates, the Company or a Local Operating Entity, furnished to it by the other Party, its Affiliates or their directors, officers, employees, representatives or agents, or by the Company or a Local Operating Entity or its directors, officers, employees, representatives or agents, or obtained by it in connection with the transactions contemplated by this Agreement or any other Transaction Document. The term "Information" shall be deemed to include those portions of any notes, analyses, compilations, studies, interpretations, memoranda or other documents (regardless of the form thereof) prepared by the receiving Party or its Affiliates or its or their directors, officers, employees, representatives or agents which contain, reflect or are based upon, in whole or in part, any Information of the disclosing Party or its Affiliates, the Company or a Local Operating Entity. In addition, such Party and its Affiliates shall not use such Information except in connection with the transactions or the performance of the obligations of such Party or such Affiliate contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder or as expressly provided for herein or therein. Neither Party or its Affiliates will disclose the Information of the other Party or its Affiliates, the Company or a Local Operating Entity to its Affiliates or its or their directors, officers, employees, representatives or agents unless such Person has a reasonable need to know such Information in connection with the transactions or the performance of the obligations of such Party or such Affiliates contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder or as

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

expressly provided for herein or therein. Neither Party or its Affiliates shall release or disclose such Information to any other Person, except those among its auditors, attorneys, financial advisors, bankers and consultants having a need to know such Information in connection with the transactions or the performance of the obligations of such Party or such Affiliate contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder, as required to comply with applicable Law or reporting requirements, or as expressly provided for herein or therein, or to actual or potential acquirers, collaborators, licensees, sub-licensees investment bankers, investors or lenders. Each Person receiving any such Information shall be subject to customary confidentiality obligations prior to such Person's receipt of such Information and such Party shall be primarily liable and responsible for any breach of this Section 17.1 as if such Person was a party hereto. In addition, each Party and its Affiliates are permitted to disclose such Information to the extent such disclosure is to a Governmental Authority as reasonably necessary in filing or prosecuting Patent, copyright and trademark applications, prosecuting or defending litigation related to this Agreement or any other Transaction Document, complying with applicable governmental regulations with respect to performance under this Agreement or any other Transaction Document or otherwise required by applicable Law. If a Party or any of its Affiliates (the "Compelled Party") is requested to disclose any Information by any governmental or regulatory authority (including stock exchange rules, GAAP or IFRS), the Compelled Party will promptly notify the other Party or the Company, as applicable (the "Affected Party"), to permit it to seek a protective order or take other action that the Affected Party in its discretion deems appropriate, and the Compelled Party will cooperate in any such efforts to obtain a protective order or other reasonable assurance that confidential treatment will be accorded such Information. If, in the absence of a protective order, the Compelled Party is compelled as a matter of Law to disclose any such Information in any proceeding or pursuant to legal process (as advised by its outside legal counsel), the Compelled Party may disclose to the Person compelling disclosure only the part of such Information as is required by Law to be disclosed (in which case, prior to such disclosure, the Compelled Party will advise and consult with the Affected Party and its counsel as to such disclosure and the nature and wording of such disclosure) and the Compelled Party will use its reasonable best efforts to obtain confidential treatment therefor. The confidentiality obligations contained in this Section 17.1 do not apply to Information that can be shown by such Party to have been (i) previously known by the Party or its Affiliates to which it was furnished prior to the date hereof (and not under a confidentiality obligation), (ii) generally available to the public through no fault or breach of such Party or its Affiliates, (iii) later lawfully acquired from other sources (not under a confidentiality obligation) by the Party or its Affiliates to which it was furnished or (iv) independently developed by a Party or its Affiliates or its or their directors, officers, employees, representatives or agents without the use or reference to any Information of the other Party, or its Affiliates, the Company or any Local Operating Entity. For the avoidance of doubt, in no event shall any information provided by a Party or its Affiliates (or one of its directors, officers, employees, representatives or agents) to the Company or a Local Operating Entity be considered Information of the Company or a Local Operating Entity with respect to such Party or its Affiliates under this Section 17.1. Following a termination of this Agreement, such confidentiality obligations and use restrictions shall

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

be maintained, subject to the exceptions set forth above, and all Information of the other Party and its Affiliates (including all copies thereof) shall be returned (or, at the other Party's instructions, destroyed, with certification of the same) to the Party that the other Party and its Affiliates shall be permitted to retain such Information (i) to the extent necessary for purposes of performing any continuing obligations or exercising any ongoing rights hereunder or under a Transaction Document and, in any event, one copy of such Information retained by the other Party's legal department for its records (provided that for so long as such Information is so retained, such Information shall be subject to the confidentiality obligations and restrictions on use as set forth herein), and (ii) any computer records or files containing such Information that have been created solely by such Party's or its Affiliates' automatic archiving and back-up procedures, to the extent created and retained in a manner consistent with such Party's standard archiving and back-up procedures, but not for any other use or purposes.

17.2 *Duration of Confidentiality*

The provisions of Section 17.1 shall continue to apply with respect to each Party and its Affiliates until the date which is […***…] following the termination of this Agreement.

17.3 *Press Releases and Other Public Disclosures*

Neither Party shall issue any press release or otherwise make any public statement with respect to this Agreement or the other Transaction Documents without the prior written consent of the other Party, except in case of public announcements required under the rules of any stock exchange on which the equity interests of a Party or its Affiliates (or any successor entity) are listed or any applicable Law or governmental requirement. Notwithstanding anything to the contrary in this Article 17, a Party (or its Affiliates) may disclose this Agreement and the other Transaction Documents (and a summary thereof) as well as the financial statements of the Company and Local Operating Entities and financial data derived therefrom, in securities filings with the U.S. Securities and Exchange Commission or an equivalent foreign agency to the extent required by applicable Law. In such event, the Party seeking such disclosure shall prepare such summary and a proposed redacted version of this Agreement and/or the other Transaction Documents to request confidential treatment for such agreements, and the other Party may promptly (and in any event, no less than […***…] Business Days after receipt of such summary and proposed redactions) provide its comments. The Party seeking such disclosure shall reasonably consider any comments thereto provided by the other Party within such […***…] Business Day period. The Parties have agreed to issue a joint press release or separate press releases announcing this Agreement and the transactions contemplated hereby, to be issued by the Parties at a mutually agreed date and time, in the form(s) to be agreed by the Parties in their reasonable discretion.

17.4 *Publications*

During the Term, each Party will submit to the Company for review and approval any proposed academic, scientific and medical publication or public presentation related to any Licensed Agent or Product or any activities conducted under the Transaction

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Documents, in each case, to the extent it includes Information of the Company or a Local Operating Entity. In each such instance, such review and approval will be conducted for the purposes of preserving the value of the CRISPR Contributed Technology, the Bayer Licensed Technology and the Company Program Technology, the rights granted under the Transaction Documents and determining whether any portion of the proposed publication or presentation containing the Company's Information should be modified or deleted. Written copies of such proposed publication or presentation required to be submitted hereunder will be submitted to the Company no later than […***…] before submission for publication or presentation (or […***…] in advance in the case of an abstract). The Company will provide its comments with respect to such publications and presentations within […***…] of its receipt of such written copy (or […***…] in the case of an abstract). The review period may be extended for an additional […***…] if the Company reasonably requests such extension including for the preparation and filing of patent applications. Notwithstanding anything to the contrary, the Company may require, in its reasonable discretion, that the requesting Party redact the Company's Information from any such proposed publication or presentation. The Parties will each comply with standard academic practice regarding authorship of scientific publications and recognition of contribution of other parties in any publication. Notwithstanding the foregoing, a Party's obligation to submit any publication to the Company for review and approval under this Section 17.4 will not apply to any publication made by a Party with respect to Licensed Products for which such Party has completed an Opt-In Transaction that does not contain Information or disclose any non-public information of the Company, a Local Operating Entity or the other Party (other than, for the avoidance of doubt, Information relating to the Licensed Products for which such Opt-In Transaction relates); provided, that where reasonably possible, such Party will provide the Company with an advance copy of such publication if such publication is reasonably likely to have a material adverse effect on the value of CRISPR Contributed Technology, Bayer Licensed Technology or the Company Program Technology. For clarity, neither Bayer nor CRISPR are obligated hereunder to submit proposed publications to the other Parties for all proposed publications relating to work conducted outside of the scope of this Agreement and the other Transaction Documents.

17.5 *Attorney-Client Privilege*

Neither Party is waiving, nor will be deemed to have waived or diminished, any of its attorney work product protections, attorney-client privileges or similar protections and privileges as a result of disclosing information pursuant to this Agreement, or any of its Information (including Information related to pending or threatened litigation) to the receiving Party, regardless of whether the disclosing Party has asserted, or is or may be entitled to assert, such privileges and protections. The Parties: (a) share a common legal and commercial interest in such disclosure that is subject to such privileges and protections; (b) are or may become joint defendants in proceedings to which the information covered by such protections and privileges relates; (c) intend that such privileges and protections remain intact should either Party become subject to any actual or threatened proceeding to which the disclosing Party's Information covered by such protections and privileges relates; and (d) intend that after the Effective Date both the receiving Party and the disclosing Party will have the right to assert such protections and privileges.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

17.6 *Prior Agreement*

This Agreement supersedes the Confidentiality Agreement entered into between Bayer AG and CRISPR dated […***…]. All confidential information exchanged between the Parties under such agreement will be subject to the terms of this Agreement.

ARTICLE 18 – RESERVED

ARTICLE 19 – BREACH

19.1 *Breach*

(a) If a Party alleges that the other Party (the "Breaching Party") has failed to perform any of its material covenants, obligations or agreements provided for in this Agreement, including, without limitation, its financial obligations or its obligations concerning the Transfer of Interests, it shall provide written notice of such alleged failure to the Breaching Party. Subject to the proviso set forth below, the Breaching Party shall have […***…] following such written notice (a "Cure Period") to remedy such failure if such Breach is curable and if the non-Breaching Party will not be materially prejudiced thereby, and if it fails to remedy such failure within such Cure Period, the Breaching Party shall be in breach of this Agreement ("Breach"); provided that (i) no notice shall be required and no cure period to remedy a Breach shall apply to failure to make the first installment of the Initial Contribution by Bayer or the Initial Contribution by CRISPR or the failure of CRISPR to execute and deliver the CRISPR IP Contribution Agreement. However, there shall be a notice requirement and a […***…] to remedy failure of Bayer to make the second installment of the Initial Contribution and the Additional Contribution when due.

(b) Upon Breach by one Party, the non-Breaching Party shall have the right to seek all remedies available hereunder (including the termination rights set forth in Section 16.1 if such Breach would trigger any such right), in law or in equity; provided, however, that nothing contained in this Section shall limit the non-Breaching Party's ability to enjoin any Breach of the provisions of this Agreement regarding Transfer of Interests and no […***…] remedy period shall apply in such instance.

(c) In addition to any other remedies set forth in this Agreement, the remedies for any Breach shall include damages and injunctive relief, including specific performance. Unless provided for herein, the rights and remedies provided in this Agreement are cumulative and are not exclusive of any rights or remedies that either Party may otherwise have at law or in equity.

ARTICLE 20 - DISPUTE RESOLUTION

20.1 *Referral to Heads of Businesses*

Unless otherwise specified in this Agreement, the Parties hereby agree that to the extent reasonably practicable and would not materially prejudice a Party, controversies or claims arising out of or relating to this Agreement or the interpretation, performance, breach, termination or validity thereof shall first be referred to the head of Bayer AG's Head of R&D and CRISPR's Chief Executive Officer for resolution. If these individuals are unable to agree upon a resolution within […***…] after referral of the matter to them (a "Resolution Period"), then either Party may pursue any available remedy hereunder, at law or in equity.

20.2 *Attorneys' Fees*

If any action at law or in equity (including, arbitration) is necessary to enforce or interpret the terms of this Agreement or any of the other Transaction Documents, including claims for fraud and/or fraudulent inducement, the prevailing Party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other relief to which such Party may be entitled.

20.3 *Arbitration*

(a) Any dispute as to the occurrence of any event in Section 16.1(b), (d), (e), (f) or (h) (if the Breaching Party is unable to cure the breach in accordance with the procedures set forth in Section 19.1(a) and the Parties are unable to resolve the dispute following escalation pursuant to the dispute resolution procedures set forth in Section 20.1, as contemplated by and in accordance with the last sentence of Section 16.1) and a Party is seeking to terminate this Agreement pursuant to such Section, or any other claim or dispute that the Parties agree in writing to arbitrate, shall be settled by arbitration administered by the American Arbitration Association in accordance with the then current Commercial Rules of the American Arbitration Association including the Procedures for Large, Complex Commercial Disputes ("AAA Rules"), except that any such arbitration must be conducted in accordance with the remainder of this Section 20.3. For the avoidance of doubt, if there is a dispute as to the occurrence of any of the events in Section 16.1(b), (d), (e), (f) or (h) and a Party is seeking remedies other than to terminate this Agreement, then such dispute shall not be required to be settled by arbitration as contemplated by this Section 20.3.

(b) Number and Selection of Arbitrators. The number of arbitrators shall be […***…], who shall be selected as follows: each of Bayer, on the one hand, and CRISPR on the other hand, shall choose one (1) arbitrator within […***…] of either initiating or receiving notice of an arbitration (as the case may be), and those Party-appointed arbitrators shall unanimously select one (1) chairman arbitrator within […***…] of the appointment of the last Party-appointed arbitrator, who shall be a lawyer admitted to practice in New York for at least

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

fifteen (15) years, and who is experienced with disputes in joint venture transactions ("Qualifications"). If the Party-appointed arbitrators are unable to agree upon the selection of the third arbitrator within […***…] of the appointment of the last Party appointed arbitrator, such chairman arbitrator shall be selected by the AAA within […***…] and shall have Qualifications.

(c) Place and Language of Arbitration. The place of arbitration shall be New York, New York, at a suitable venue to be agreed by the Parties and arbitrators within […***…] of the appointment of the chairman arbitrator. The proceedings shall be conducted in the English language.

(d) Binding Decision. The decision and award of the arbitral tribunal shall be made by majority decision and shall be final, nonappealable and binding on the Parties hereto and their successors and assigns. The arbitral award shall be accompanied by a reasoned opinion.

(e) Allocation of Costs. The decision and award of the arbitral tribunal shall include a decision regarding the allocation of costs relating to any such arbitration. For purposes of this subsection, "costs" shall include reasonable attorneys' fees and reasonable experts' fees actually incurred with respect to the arbitration proceeding.

(f) Period for Arbitration.

(i) The arbitration shall be completed no later than […***…] after the selection of the chairman arbitrator, unless the chairman arbitrator determines, at the request of any Party or on his or her own initiative, that such time period should be extended, in which case such time period may not be extended beyond an additional […***…].

(ii) Notwithstanding any provision of the AAA Rules: (i) each of CRISPR and Bayer shall be permitted to serve up to […***…], and to take […***…] of the other Party, in addition to exchange of documents, exhibits and information as provided for in the AAA Rules, on dates and locations to be mutually agreed upon (or, failing such agreement, as the chairman arbitrator shall select after hearing from the Parties); (ii) any documents not in English that are produced by a Party shall be accompanied by a translation into English, which translation shall not be binding upon the other Party or the arbitrators; (iii) each of CRISPR and Bayer covenant and agree that it shall produce documents, information, and deposition and hearing witnesses, as required by this Section and as otherwise required by the AAA Rules; and (iv) subpoenas to non-parties, for production of documents and/or for testimony, shall be issued at the request of a Party, up to […***…] per Party. The Parties will make their respective employees, and will use commercially reasonable efforts to make their former employees, available for depositions and hearing testimony as requested by the other Parties.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(g) Enforcement of Judgment. Judgment on the arbitral award may be entered in any court having jurisdiction thereof.

(h) Confidentiality. Except as required by applicable Law or as required for recognition and enforcement of the arbitral decision and award, the arbitrator may not disclose the existence, content or results of any arbitration hereunder without the prior written consent of the Parties, and the Parties agree that any such information shall be considered Information hereunder and subject to the restrictions set forth in Article 17. Any documents submitted to the arbitrators shall be kept confidential and shall not be disclosed, except that any such documents may be disclosed as permitted by Article 17 or in connection with any action to collect the award, or if any such documents are discoverable or admissible in any action in court contemplated by this Agreement.

(i) Enforcement; Interim Measures; Equitable Relief. Each Party may apply to any court having jurisdiction (a) to enforce the arbitration provisions of this Agreement, (b) to seek provisional injunctive relief so as to maintain the status quo (including, but not limited to, maintaining the confidentiality of any arbitration proceedings and non-public information) until the final arbitration award is rendered and is finally judicially confirmed if challenged judicially, or the dispute is otherwise resolved, or (c) to seek equitable relief.

20.4 *Jurisdiction*

Each Party to this Agreement, by its execution hereof, unless otherwise prohibited by applicable Law (a) hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any action between the Parties arising in whole or in part under Section 20.3 or for any dispute not subject to Section 20.3, (b) hereby waives and agrees not to assert, by way of motion, as a defense or otherwise, in any such action, any claim that it is not subject personally to the jurisdiction of the above-named courts, that any such action brought in one of the above-named courts should be dismissed on grounds of forum non conveniens, should be transferred or removed to any court other than one of the above-named courts, or should be stayed by reason of the pendency of some other proceeding in any court other than one of the above-named courts, or that this Agreement or the subject matter hereof may not be enforced in or by such court and (c) to the extent that an action can be commenced in a court and not an arbitration, agrees not to commence any such action in any court other than before one of the above-named courts. Notwithstanding the previous sentence, a Party may commence any action in a court other than the above-named courts for the purpose of enforcing an order or judgment issued by one of the above-named courts.

20.5 *Venue*

Neither Party will assert that venue should properly lie in any other location within the selected jurisdiction.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

20.6 *Specific Performance*

Each of the Parties acknowledges and agrees that the other Party would be damaged irreparably in the event any of the provisions of this Agreement are not performed in accordance with their specific terms or otherwise are breached or violated. Accordingly, each of the Parties agrees that, without posting a bond or other undertaking, the other Party may seek (and obtain) an injunction or injunctions to prevent breaches or violations of the provisions of this Agreement and to enforce specifically this Agreement and the terms and provisions hereof in any Action instituted in any court specified herein. An Action for specific performance as provided herein shall not preclude a Party from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Agreement. Each Party further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate provided, however, each Party also agrees that any Party can assert any other defense it may have other than the defense of adequate remedy at law.

ARTICLE 21 - ASSIGNMENT

21.1 *Assignment*

Except as permitted under this Agreement (including a Permitted COC Transfer complying with Article 11), (a) any of the rights, interests and obligations created herein shall not be transferred or assigned to any Third Party and such rights and interests shall not inure to the benefit of any other Person, including any trustee in bankruptcy, receiver or other successor of either of the Parties, whether by operation of Law, sub-license, transfer of the assets, merger, liquidation or otherwise, without the prior written consent of the other Party, and (b) any purported or actual transfer or assignment of any such rights, interests or obligations without the prior written consent of the other Party is and shall be null and void ab initio; provided, however, that either of the Parties may, without consent of the other Party, assign its respective rights and obligations under this Agreement to a successor company of such Party as the result of an internal corporate reorganization to a wholly-owned Affiliate of such Party; provided that the assigning Party shall remain primarily liable hereunder. In addition to the requirements of the prior sentence, if this Agreement is assigned to a Third Party by a Party, as a condition to such assignment, all other Transaction Documents to which such Party is a party shall concurrently be assigned to such Third Party and all Interests of such Party and its Affiliates are to be transferred to such Third Party.

ARTICLE 22 - NOTICES AND MISCELLANEOUS

22.1 *Form of Valid Notice*

(a) All notices or other communications provided for in this Agreement or that may otherwise be required must be in writing, clearly legible and shall be sent:

(i) by an internationally recognized courier service with acknowledgment of receipt, properly addressed, and postage pre-paid;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(ii) by e-mail; or

(iii) by personal delivery.

(b) Any notice sent by one of the means described in Section 22.1(a) will be deemed received:

(i) if sent by an internationally recognized courier service, three (3) Business Days after deposit with such courier service,

(ii) if sent by e-mail, when there is effective acknowledgment of receipt, or

(iii) if delivered personally, when delivered.

22.2 *Persons and Addresses*

Except as may otherwise be provided, all notices or other communications provided for in this Agreement or that a Party may otherwise be required to give to the other Party shall be sent as provided in Section 22.1 to the following persons at the addresses stated herein or at such other address as either Party may specify by notice to the other Party given in accordance with this Article 22:

To CRISPR:
CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel
Switzerland
Attention: Chief Executive Officer and Chief Legal Officer

and

CRISPR Therapeutics Ltd.
85 Tottenham Court Road
London W1T 4TQ
United Kingdom
Attention: Chief Legal Officer

With a copy to:
Goodwin Procter LLP
53 State Street
Boston, MA 02109
USA
Attention: Mitchell S. Bloom and Robert E. Puopolo

To Bayer:
Bayer Aktiengesellschaft
Kaiser-Wilhelm-Allee
51368 Leverkusen
Germany
Attention: Dr. Axel Bouchon and Dr. Jan Heinemann

With a copy to:
Norton Rose Fulbright US LLP
801 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-2623
USA
Attention: Marilyn Mooney

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

22.3 *Miscellaneous*

(a) No amendment, modification or addition to any provision of this Agreement shall be valid unless the same shall be in writing and approved by the signature of each Party.

(b) The terms and conditions of this Agreement shall be interpreted according to the common sense meaning intended by the Parties and in accordance with the principles of good faith and fair dealing.

(c) The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Agreement. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise.

(d) Every day commences at 12:00 a.m. and ends at 11:59 p.m. (midnight) New York time. Any reference in this Agreement to a number of days “in” which an action or notice is to be taken or given, shall be interpreted in such way that the term commences the day after the date taken as reference and that the action or notice shall be validly taken or given at the last day. Any reference in this Agreement to a “day” or a number of “days” without explicit qualification of “business” shall be interpreted as a reference to a calendar day or number of calendar days. If any action or notice is to be taken or given on or by a particular calendar day, and such calendar day is not a Business Day, then such action or notice shall be deferred until, or may be taken or given on, the next Business Day.

(e) This Agreement shall constitute the entire agreement and understanding between the Parties and shall supersede and nullify any and all previous agreements, negotiations, commitments, undertakings and declarations heretofore made between the Parties in respect of the subject matter of this Agreement unless expressly provided for herein or in any schedule attached hereto and any other agreement entered in connection herewith.

(f) Words importing gender include all genders.

(g) The division of this Agreement into articles, sections and clauses, the inclusion of a table of contents and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(h) Each provision contained in this Agreement is distinct and severable. A declaration of invalidity, illegality or unenforceability of any provision or a part thereof by an arbitrator, a court or a tribunal of competent jurisdiction shall not affect the validity or enforceability of any other provision of this Agreement. To the extent permitted by law, if any provision of this Agreement, or the application thereof to any Person or any circumstance, is invalid or unenforceable, (i) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (ii) the remainder of this Agreement and the application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application thereof, in any other jurisdiction.

(i) Any mistaken reference to Articles, clauses, Sections, Schedules or paragraphs of this Agreement shall be amended according to common sense and good faith rules. When a reference is made in this Agreement to an Article, clause, Section, Schedule or paragraph, such reference will be to an Article, clause, Section, Schedule or paragraph unless otherwise indicated.

(j) No waiver by any Party of any default, misrepresentation or breach of warranty or covenant hereunder, whether intentional or not, shall be deemed to extend to any prior or subsequent default, misrepresentation or breach of warranty or covenant hereunder or affect in any way any rights arising by virtue of any prior or subsequent such occurrence. No single or partial exercise of any right, power or privilege shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege unless explicitly provided for in this Agreement.

(k) Subject to the terms of and restrictions in this Agreement, the reference to any Party shall include its successors or permitted transferees that have legally acquired its rights, obligations and/or duties. This Agreement shall be binding upon and inure solely to the benefit of the Parties and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other Person any legal or equitable right, benefit or remedy of any nature whatsoever, unless otherwise specified therein.

(l) EACH OF THE PARTIES HEREBY WAIVES TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY WITH RESPECT TO ANY ACTION OR LIABILITY DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT. EACH OF THE PARTIES HEREBY (A) CERTIFIES THAT NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF ANY SUCH ACTION OR LIABILITY, SEEK TO ENFORCE THE FOREGOING WAIVER; AND (B) ACKNOWLEDGES THAT IT HAS BEEN INDUCED TO ENTER INTO

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, AS APPLICABLE, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 22.3(l).

(m) This Agreement may be executed and delivered (including by means of electronic transmission, such as by electronic mail in ".pdf" form) in two or more counterparts, and by the different Parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement.

(n) Whenever the words "include," "includes" or "including" are used in this Agreement, they will be deemed to be followed by the words "without limitation." The words "hereof," "herein" and "hereunder" and words of similar import when used in this Agreement will refer to this Agreement as a whole and not to any particular provision of this Agreement. All terms used herein with initial capital letters have the meanings ascribed to them herein and all terms defined in this Agreement will have such defined meanings when used in any certificate or other document made or delivered pursuant hereto unless otherwise defined therein. The definitions contained in this Agreement are applicable to the singular as well as the plural forms of such terms. Any agreement, instrument or statute defined or referred to herein, or in any agreement or instrument that is referred to herein, means such agreement, instrument or statute as from time to time amended, modified or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The use of "or" is not intended to be exclusive unless expressly indicated otherwise. References to sums of money are expressed in lawful currency of the United States (U.S. dollars), unless the Parties otherwise agree in writing to use a different currency.

22.4 *Tax Matters*

The Parties agree that "Appendix – Tax Matters" attached hereto (the "Tax Appendix") shall provide for the treatment of certain tax matters relating to the Company and the Parties.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized officers as of the day and year first above written.

CRISPR THERAPEUTICS AG

By: /s/ Rodger Novak
Name: Rodger Novak
Title: Chief Executive Officer

BAYER HEALTHCARE LLC

By: /s/ Alan Stevenson
Name: Alan Stevenson
Title: Assistant Secretary

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 1.1

Definitions

(a) The following terms shall have the following meanings:

1. "Action" means any claim, action, cause of action, chose in action or suit (whether in contract or tort or otherwise), litigation (whether at law or in equity, whether civil or criminal), controversy, assessment, arbitration, examination, audit, investigation, hearing, charge, complaint, demand, notice or proceeding to, from, by or before any Governmental Authority or arbitrator(s).

2. "Affiliate" or "Affiliates" means, with respect to any entity, any Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such entity; and for the purposes of this definition, "control" (and the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such entity, directly or indirectly, whether through the ownership of voting securities or by contract or otherwise. Without limiting the generality of the foregoing, a Person shall be deemed to control another Person if any of the following conditions is met: (a) in the case of corporate entities, direct or indirect ownership of at least fifty percent (50%) of the stock or shares having the right to vote for the election of directors, and (b) in the case of non-corporate entities, direct or indirect ownership of at least fifty percent (50%) of the equity interest with the power to direct the management and policies of such non-corporate entities. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and that in such case such lower percentage shall be substituted in the preceding sentence, *provided* that such foreign investor has the power to direct the management and policies of such entity. For the purposes of this Agreement, (i) no Party or any of its Affiliates shall be considered an Affiliate of any other Party or any of its Affiliates or of the Company or any of its Affiliates, and neither the Company nor any of its Affiliates shall be considered an Affiliate of any Party or any of its Affiliates, simply by virtue of this Agreement or the relationships created hereby or by the Company Organization Documents or any Local Operating Agreement, and (ii) no Person shall be considered an Affiliate of a Party solely as a result of their right to designate a member of such Party's board of directors.

3. "Agreement" and "this Agreement" means this Joint Venture Agreement, as may be amended or supplemented from time to time in accordance with Section 1 of Schedule 2.1, including all Schedules attached to this Agreement. The expressions "herein", "hereof", "hereto", "hereunder" and "hereby", as well as similar expressions, refer to this Agreement as a whole and not to any particular article, Section, schedule or other parts.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4. “Animal Models” means laboratory animals useful for medical research because they exhibit characteristics that can be used for evaluating potential treatments of a human disease or disorder.

5. “Approval Application” means, with respect to a Licensed Product in a particular jurisdiction, an application for approval, license, registration or authorization necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, an application for approval for such Licensed Product by the FDA, and with respect to the European Union, an application for approval for such Licensed Product by the European Commission.

6. “Assay” means a procedure for qualitatively assessing or quantitatively measuring the presence, amount, functional activity, safety profile or other property of an active ingredient, biologic or other analyte.

7. “Background Patents” means the Bayer Background Patents and the CRISPR Background Patents.

8. “Business” means engaging in the activities reasonably necessary or appropriate to achieve the Objective.

9. “Business Day” means any day other than a Saturday, a Sunday or a day on which banks in New York City, United States of America or Frankfurt-Main, Germany or Leverkusen, Germany are authorized or obligated by applicable law or executive order to close.

10. “Bayer Background Know-How” means any and all Know-How Controlled by Bayer, as of the Effective Date or that come into the Control of Bayer during the Technology Term, that might be useful or necessary to Company to Develop, Manufacture or Commercialize CRISPR/Cas Technology, Licensed Agents or Products in the Fields.

11. “Bayer Background Patents” means any and all Patents that are Controlled by Bayer, as of the Effective Date or that come into the Control of Bayer during the Technology Term, and that are not part of the Joint Patents, and that claim or disclose Bayer Background Know-How.

12. “Bayer Background Technology” means all Bayer Background Know-How and Bayer Background Patents.

13. “Bayer Limited Background Know-How” means all Bayer Background Know-How that pertains to Assays, Animal Models, Delivery Technology or Protein Optimization Technology.

14. “Bayer Limited Background Patents” means any Patents Controlled by Bayer claiming or disclosing any Bayer Limited Background Know-How.

15. “Bayer Field” means any Field under the heading “Bayer Field” on Schedule 3.1.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

16. "Change of Control" means, with respect to Party, any of the following events: (a) any Person is or becomes the "beneficial owner" (as such term is used in Section 13(d) of the Securities Exchange Act of 1934, as amended, and Rule 13d-3 thereunder, except that a Person shall be deemed to have "beneficial ownership" of all shares that any such Person has the right to acquire, whether such right may be exercised immediately or only after the passage of time), directly or indirectly, of a majority of the total voting power represented by all classes of capital stock then outstanding of Party normally entitled to vote in elections of directors; (b) Party consolidates with or merges into another corporation or entity, or any corporation or entity consolidates with or merges into Party, other than (i) a merger or consolidation that would result in the voting securities of Party outstanding immediately prior to such merger or consolidation continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or any parent thereof) a majority of the combined voting power of the voting securities of Party or such surviving entity or any parent thereof outstanding immediately after such merger or consolidation, or (ii) a merger or consolidation effected to implement a recapitalization of Party (or similar transaction) in which no Person becomes the beneficial owner, directly or indirectly, of voting securities of Party representing a majority of the combined voting power of Party's then outstanding securities; or (c) Party conveys, transfers or leases all or substantially all of its assets to any Person other than a wholly-owned Affiliate of such Party; provided, that a financing transaction, the primary purpose of which is to raise capital for such Party, shall in no event be considered a Change of Control.

17. "Claims" means any claim, demand, suit, action, investigation, proceeding, governmental action or cause of action of any kind or character (in each case, whether civil, criminal, investigative or administrative), known or unknown, under any theory, including those based on theories of contract, tort, statutory liability, strict liability, employer liability, premises liability, products liability or breach of warranty.

18. "Clinical Trial" means a study in humans that is designed to generate data in support of an Approval Application.

19. "Commercialize" or "Commercialization" means to market, promote, distribute, offer for sale, sell, have sold, import, export or otherwise commercialize a product, to conduct activities, other than, Development and Manufacturing, in preparation for the foregoing activities, including obtaining Price Approval, and to conduct Clinical Trials and post-Marketing Approval studies. When used as a noun, "Commercialization" means any and all activities involved in Commercializing.

20. "Commercially Reasonable Efforts" means with respect to the efforts to be expended by any Person, with respect to any objective, reasonable, diligent and good faith efforts to accomplish such objective. With respect to any Objective relating to the Research, Development or Commercialization of a Licensed Agent or Licensed Product, "Commercially Reasonable Efforts" means that level, caliber and quality of efforts and resources reasonably and normally used (as to CRISPR) by biopharmaceutical companies with adequate financing and resources, (as to Company), by biopharmaceutical companies of similar size to Company with adequate financing and resources and (as to

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Bayer) as Bayer would normally use to accomplish a similar objective under similar circumstances, as to a potential or actual product that is important to such Person's overall strategy or Objectives, taking into account, without limitation, with respect to each Licensed Agent or Licensed Product, (a) issues of safety, efficacy, product profile, (b) likelihood of receiving Marketing Approval for the applicable Product, (c) potential to accelerate the development and regulatory timelines for the Licensed Product, (d) regulatory structure involved, (e) Regulatory Authority-approved labeling, (f) market potential of the Licensed Product, (g) potential benefit of the Licensed Product to patients with the relevant indication, (h) competitiveness in the marketplace, (i) proprietary position and (j) other relevant scientific, technical and business factors deemed relevant by the applicable Party. "Commercially Reasonable Efforts" shall be determined on a country-by-country basis and activities that are conducted in one country that have an effect on achieving the relevant Objective in another country shall be considered in determining whether Commercially Reasonable Efforts have been applied in such other countries.

21. "Companion Diagnostic" means any companion diagnostic tool and/or diagnostic assay, the manufacture, use, sale or importation of which is Covered by the Company Crispr/Cas Technology, Company Optimized Cas Technology, CRISPR Background Know-How and CRISPR Platform Technology Know-How, which is used to (i) […***…], (ii) […***…], and/or (iii) […***…].

22. "Company CRISPR/Cas Know-How" means any Know-How Controlled by the Company that constitutes an addition, amendment or enhancement to the Crispr/Cas Technology that is not Company Optimized Cas Know-How that is (i) […***…] or (ii) […***…].

23. "Company CRISPR/Cas Patents" means any Patents Controlled by Company claiming or disclosing any Company CRISPR/Cas Know-How.

24. "Company CRISPR/Cas Technology" means the Company CRISPR/Cas Know-How and the Company CRISPR/Cas Patents.

25. "Company Non-Product Know-How" means any and all Know-How Controlled by the Company during the Technology Term, including Delivery Technology and excluding Company CRISPR/Cas Know-How, Company Product Know-How and Optimized Cas Know-How, that, is (i) […***…] or (ii) […***…].

26. "Company Non-Product Patents" means any Patents Controlled by the Company claiming or disclosing any Company Non-Product Know-How.

27. "Company Non-Product Technology" means the Company Non-Product Know-How and the Company Non-Product Patents.

28. "Company Optimized Cas Know-How" means all Know-How related to enhancements, amendments or additions in and to any nuclease element of the CRISPR/Cas Technology (i) discovered, developed, invented or created by employees of Company or others acting for or on behalf of the Company, including, without limitation, Bayer or CRISPR in performance of services for the Company or (ii) acquired or licensed by Company from Third Parties, excluding such Know-How in-licensed through the Parties.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

29. “Company Optimized Cas Patents” means any Patents claiming or Covering Optimized Cas Know-How.

30. “Company Optimized Cas Technology” means the Company Optimized Cas Know-How and Company Optimized Cas Patents.

31. “Company Post-IND Product Technology” means, with respect to a Licensed Agent or Product for which an IND has been submitted, Company Product Technology relating to such Licensed Agent or Product that exists at the time of the termination of the Agreement.

32. “Company Pre-IND Product Technology” means, with respect to a Licensed Agent or Product for which an IND has not been submitted (each, a “Pre-IND Product”), Company Product Technology relating to such Licensed Agent or Product that exists at the time of the termination of the Agreement.

33. “Company Product Know-How” means any and all Know-How Controlled by the Company during the Technology Term that relates to the composition or use of a Licensed Agent or Product in the Fields, including […***…].

34. “Company Product Patents” means any Patents Controlled by the Company that claim or disclose any Company Product Know-How.

35. “Company Product Technology” means the Company Product Know-How and the Company Product Patents.

36. “Company Program Know-How” means (i) Company Product Know-How, (ii) Company Non-Product Know-How, (iii) Company CRISPR/Cas Know-How (iv) Company Optimized Cas Know-How and (v) the Company’s interest in any and all Joint Know-How.

37. “Company Program Patents” means (i) Company Product Patents, (ii) Company Non-Product Patents, (iii) Company CRISPR/Cas Patents (iv) Company Optimized Cas Patents and (v) the Company’s interest in any and all Joint Patents.

38. “Company Program Technology” means the Company Program Know-How and the Company Program Patents.

39. “Competing Product” any product comprising Crispr/Cas Technology or comprising modified human cells or tissues produced using Crispr/Cas Technology that Targets a Target that is reasonably believed to have a […***…] that is within the applicable Fields. For clarity, the […***…].

40. “Competing Technology” means Intellectual Property necessary for Development or Commercialization of products for Human Therapeutic Use comprising CRISPR/Cas Technology or comprising modified human cells or tissues produced using Crispr/Cas Technology. For clarity, the […***…].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

41. “Control” means with respect to any Know-How or Patent or other data, information or Materials, possession of the ability by a Party or its Affiliate(s) (whether by sole or joint ownership, license or otherwise, but in all cases not including when such rights are granted or obtained pursuant to the Transaction Documents) to grant, without violating the terms of any agreement with a Third Party, a license, access or other right in, to or under such Know-How or Patent or other data, information or Materials. Notwithstanding anything in the Transaction Documents to the contrary, a Party will be deemed to not Control any Patents or Know-How that are owned or controlled by a Third Party described in the definition of “Change of Control,” or such Third Party’s Affiliates (other than an Affiliate of such Party prior to the Change of Control), (a) prior to the closing of such Change of Control, except to the extent that any such Patents or Know-How were developed prior to such Change of Control through the use of such Party’s technology, or (b) after such Change of Control to the extent that such Patents or Know-How are developed or conceived by such Third Party or its Affiliates (other than such Party) after such Change of Control without using or incorporating such Party’s technology. A Party does not need to amend any existing in-license as of the Effective Date so that such Party “Controls” any IP under such given in-license.

42. “Controlling Party” means the Party having the right under any Transaction Document to conduct and control (i) the Prosecution and Maintenance, (ii) challenges against validity and unenforceability or patentability of Intellectual Property and/or (iii) any Claim or action for enforcement directed to an actual or alleged infringement or misappropriation of Intellectual Property, in all cases, as and for so long as such Party maintains such right.

43. “Cover,” “Covering” or “Covers” means, as to a product and Patent, that, in the absence of a license granted under, or ownership of, such Patent, the making, using, keeping, selling, offering for sale or importation of such product would infringe such Patent or, as to a pending claim included in such Patent, the making, using, selling, offering for sale or importation of such product would infringe such Patent if such pending claim were to issue in an issued patent without modification.

44. “Covered Target” means a Target as and for so long as such Target remains the subject of a license or similar grant of rights under the Existing Third Party Agreement. For the avoidance of doubt, Covered Targets shall not be deemed Third-Party Targets or Excluded Covered Targets.

45. “Crispr/Cas Technology” means clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) protein system that comprises (a) at least one guide RNA element that is complementary to a Target, wherein said guide RNA element can be a guide RNA or a polynucleotide(s) encoding such guide RNA, and (b) a nuclease element, wherein said nuclease element is a Cas nuclease protein.

46. “CRISPR Background Know-How” means any and all Know-How other than CRISPR Platform Technology Know-How Controlled by CRISPR, as of the Effective Date or that

comes into the Control of CRISPR during the Technology Term, that is useful to or necessary for the Company to Develop, Manufacture or Commercialize Licensed Agents or Products in the Fields.

47. "CRISPR Background Patents" means any and all Patents other than a Company Program Patent or CRISPR Platform Technology Patent […***…].

48. "CRISPR Background Technology" means all CRISPR Background Know-How and CRISPR Background Patents.

49. "CRISPR Contributed Technology" means all CRISPR Platform Technology Patents, CRISPR Platform Technology Know-How, CRISPR Background Know-How and CRISPR Background Patents.

50. "CRISPR Field" means any Field under the heading "CRISPR Field" on Schedule 3.1.

51. "CRISPR Platform Technology Know-How" means any […***…].

52. "CRISPR Platform Technology Patents" means any and all […***…].

53. "Delivery Technology" means methods, formulations, technologies and systems, including vectors, for transporting a Licensed Agent or Product into or within the human body or into human cells outside of the body.

54. "Develop" or "Development" means, with respect to a Licensed Agent, all clinical and non-clinical research and development activities conducted for such Licensed Agent, including toxicology, pharmacology test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, Clinical Trials (other than post-Marketing Approval Clinical Trials), regulatory affairs, pharmacovigilance, Clinical Trial regulatory activities and obtaining and maintaining Regulatory Approval. When used as a verb, "Develop" or "Developing" means to engage in Development.

55. "EMA" means the European Medicines Agency and any successor entity thereto.

56. "European Commission" means the European Commission or any successor entity that is responsible for granting Marketing Approvals authorizing the sale of pharmaceuticals in the European Union.

57. "European Union" or "EU" means each and every country or territory that is officially part of the European Union.

58. "Existing Third Party Agreement" means that certain Strategic Collaboration, Option and License Agreement entered into by and between CRISPR (and certain of its Affiliates) and Vertex Pharmaceuticals, Incorporated (and certain of its Affiliates) dated as of October 26, 2015.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

59. “Exploit” or “Exploitation” means to make, have made, import, export, use, sell, have sold and/or offer for sale or otherwise dispose of.

60. “FDA” means the United States Food and Drug Administration and any successor agency thereto.

61. “Fields” means the CRISPR Fields and the Bayer Fields, provided fields shall not include diagnosis, prevention or treatment of cystic fibrosis.

62. “Focus Areas” means with respect to […***…], each as set forth on Schedule 3.1.

63. “FTE” shall mean a full time equivalent employee (*i.e.*, one fully-committed or multiple partially-committed employees aggregating to one full-time employee) employed or contracted by a Party and assigned to perform specified work, with such commitment of time and effort to constitute one employee performing such work on a full-time basis, which for purposes hereof shall be eighteen hundred (1,800) hours per year.

64. “GAAP” means United States generally accepted accounting principles, consistently applied, as in effect from time to time.

65. “Good Cause” means (x) […***…], or (y) […***…].

66. “Governmental Authority” means any court, agency, authority, department, regulatory body or other instrumentality of any government or country or of any national, federal, state, provincial, regional, county, city or other political subdivision of any such government or any supranational organization of which any such country is a member.

67. “Human Therapeutic Use” means the use of the CRISPR/Cas Technology for use in the discovery, research and development of products for the treatment or prevention of any human disease, disorder or condition, including researching, developing, making, using or selling Licensed Agents or Products and Companion Diagnostics.

68. “IFRS” means International Accounting Standards/International Financial Reporting Standards of the International Accounting Standards Board as amended from time to time.

69. “[…***…]” means a Target that reduces […***…] in humans in combination with other Targets primarily directed toward a field or fields other than the Fields.

70. “IND” means with respect to each Licensed Product in a Field, an Investigational New Drug Application filed with the FDA with respect to such Licensed Product, as described in the FDA regulations, including all amendments and supplements to the application, and any equivalent filing with any Regulatory Authority outside the United States.

71. “In-License Agreement” means the agreements with Third Party licensors under which the CRISPR Contributed Technology or Bayer Licensed Technology is being licensed by CRISPR or Bayer, respectively.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

72. “Intellectual Property” means (i) patents (including utility, design, plant, utility model, reissues, re-examination, and patents of addition), patent applications (filed, unfiled or being prepared), records of invention, (ii) trademarks (registered or unregistered), trademark applications, trade names, copyrights (registered or unregistered), copyright applications, mask works, service marks (registered or unregistered), service mark applications, database rights (registered or unregistered), all together with the goodwill associated with such marks or names, (iii) trade secrets, technology, inventions, know-how, processes and confidential and proprietary information, including any being developed (including but not limited to designs, manufacturing data, design data, test data, operational data, and formulae), whether or not recorded in tangible form through drawings, software, reports, manuals or other tangible expressions, whether or not subject to statutory registration, anywhere, and all rights to any of the foregoing.

73. “Joint Know-How” means Know-How discovered, developed, invented or created jointly by (a) […***…] and (b) […***…].

74. “Joint Patents” means any Patents claiming or Covering any Joint Know-How.

75. “Joint Technology” means (i) Joint Know-How and (ii) Joint Patents.

76. “Know-How” means Intellectual Property, data, results, pre-clinical and clinical protocols and data from studies and Clinical Trials, chemical structures, chemical sequences, information, inventions, know-how, formulas, trade secrets, techniques, methods, processes, procedures and developments, whether or not patentable; *provided* that Know-How does not include Patents claiming any of the foregoing.

77. “Knowledge” means (i) with respect to CRISPR, the actual knowledge of […***…] after having made reasonable inquiries of CRISPR personnel and advisors that would reasonably be anticipated to have knowledge of facts relating to the relevant subject matter and (ii) with respect to Bayer, the actual knowledge of […***…] after having made reasonable inquiries of Bayer personnel and advisors that would reasonably be anticipated to have knowledge of facts relating to the relevant subject matter.

78. “Law” or “Laws” means all applicable laws, statutes, rules, regulations and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, agency or other body, domestic or foreign, including any applicable rules, regulations, guidelines, or other requirements of the Regulatory Authorities that may be in effect from time to time.

79. “Licensed Agent” means a product comprising (a) all components of a Crispr/Cas Technology, for Targeting a Target, where such Crispr/Cas Technology, or any portion thereof is discovered by or on behalf of the Company or a Local Operating Entity (solely or jointly with such entities), or is in the Company’s or a Local Operating Entity’s Control, prior to the Effective Date, or during the Technology Term or (b) modified human cells or tissue, or another cell- or tissue-based product, or any other therapeutic product comprising or produced using the Crispr/Cas Technology, in each case produced using the components referred to in clause (a).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

80. “Licensed Know-How” means any and all Know-How that Company Controls that are necessary or useful to Develop, Manufacture and Commercialize a Licensed Agent or Licensed Product in the Field.

81. “Licensed Patents” means all Patents that Company Controls that are necessary or useful to Develop, Manufacture and Commercialize a Licensed Agent or Licensed Product in the Field.

82. “Licensed Product” means any Product that (i) has been licensed by a Party following opt-in or (ii) licensed to a Third Party. All Products comprising the same Licensed Agent(s) (and no additional Licensed Agents) will be considered the same Licensed Product under this Agreement.

83. “Licensed Technology” means, the Licensed Know-How and the Licensed Patents.

84. “Local Operating Agreement” means, as applicable, any agreement governing the formation and operation of any Local Operating Entity formed pursuant to Section 3.3 of this Agreement.

85. “Local Operating Entity” means any local operating entity formed by the Company pursuant to Section 3.3 of this Agreement.

86. “Loss” means any loss, cost, liability or expense, settlement, damage of any kind, judgment, obligation, charge, fee, fine, penalty, interest, court cost and/or administrative and reasonable attorneys’ fees, expert fees, consulting fees, and disbursements (at all levels, including appellate), but excluding a Person’s indirect corporate and administrative overhead costs, lost profits, lost revenues, loss of use, diminutions in value and special, incidental, exemplary and punitive damages.

87. “Manufacture” or “Manufacturing” means activities directed to making, having made, producing, manufacturing, processing, filling, finishing, packaging, labeling, quality control testing and quality assurance release, shipping or storage of a product.

88. “Marketing Approval” means, with respect to a Licensed Product in a particular jurisdiction, all approvals, licenses, registrations or authorizations necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, approval of an Approval Application for such Licensed Product by the FDA and with respect to the European Union, approval of an Approval Application for such Licensed Product by the European Commission.

89. “Materials” means all biological materials or chemical compounds arising out of a Party’s activities under this Agreement or otherwise provided by a Party for use by the other Party to conduct activities pursuant to this Agreement, including Licensed Agents, Clinical Trial samples, cell lines, assays, viruses and vectors.

90. “Member” means either Bayer or CRISPR as an owner of an Interest, and any permitted assignees and transferees of an Interest.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

91. “Non-Human Therapeutic Uses” means uses (a) other than Human Therapeutic Uses, and (b) for the discovery and research and preclinical development of products for the diagnosis, treatment or prevention of any human disease, disorder or condition, but excluding research, developing, making, using or selling Licensed Agents or Products or Companion Diagnostics.

92. “Out-of-Pocket Costs” means, with respect to a Party, costs and expenses paid by such Party to Third Parties (or payable to Third Parties and accrued in accordance with GAAP or IFRS), other than Affiliates or employees of such Party.

93. “Party” or “Parties” means, when used in singular, any signatory to the applicable agreement, as the context may require, and when used in plural, all signatories to the applicable agreement, and any permitted successor or assign thereto.

94. “Patents” means the rights and interests in and to issued patents and pending patent applications and similar government-issued rights (e.g., utility models) protecting inventions in any country, jurisdiction or region (including inventor’s certificates and utility models), including all priority applications, international applications, provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing.

95. “Patent Costs” means the reasonable fees and expenses paid to outside legal counsel, and filing, maintenance, disbursement and other reasonable Out-of-Pocket Costs paid to Third Parties, in connection with the Prosecution and Maintenance of Patents.

96. “Person” means any individual, partnership, limited partnership, limited liability company, joint venture, syndicate, sole proprietorship, company or corporation with or without share capital, unincorporated association, trust, trustee, executor, administrator or other legal personal representative or governmental body.

97. “Preclinical Proof of Concept” means the reasonable demonstration of the ability of the Crispr/Cas Technology for Targeting a Target using Assays based on […***…] as applicable and appropriate to such Target which is to be defined in the respective research plan.

98. “Price Approval” means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

99. “Primary Indication” means, with respect to a Target, the condition or disease that is most closely associated with the diagnosis, prevention or treatment through Targeting such Target as determined by the then-current weight of reliable scientific authority, for example, as reflected in peer-reviewed publications.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

100. “Product” means any pharmaceutical product, medical therapy, preparation, substance, or formulation comprising or employing, in whole or in part, a Licensed Agent.

101. “Protein Optimization Technology” means the modification of a Cas protein by amino acid substitution, deletion insertion or other molecular biological or biochemical methods to improve its characteristics, including but not limited to activity, stability, deliverability, immunogenicity and specificity.

102. “Prosecution and Maintenance” or “Prosecute and Maintain” means, with regard to a Patent, the preparing, filing, prosecuting and maintenance of such Patent, as well as handling re-examinations and reissues with respect to such Patent, together with the conduct of interferences, the defense of oppositions and other similar proceedings with respect to the particular Patent. For clarification, Prosecution and Maintenance or Prosecute and Maintain will not include any other enforcement actions taken with respect to a Patent.

103. “Regulatory Approval” means the technical, medical and scientific licenses, registrations, authorizations and approvals (including approvals of Approval Applications, supplements and amendments, pre- and post- approvals, and labeling approvals) of any Regulatory Authority, necessary for the Research, Development, clinical testing, commercial manufacture, distribution, marketing, promotion, offer for sale, use, import, export or sale of a pharmaceutical product in a regulatory jurisdiction, including Marketing Approval.

104. “Regulatory Authority” means, with respect to a country in the Territory, any national (e.g., the FDA), supra-national (*e.g.*, the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Price Approvals for pharmaceutical products in such country or countries.

105. “Registration Filing” means any submission to a Regulatory Authority of any appropriate regulatory application for Regulatory Approval.

106. “Related Party Transaction” means any transaction, agreement, license, lease or commitment between the Company or any Local Operating Entity, on the one hand, and any Member or any of its Affiliates, on the other hand.

107. “Sublicense” means, directly or indirectly, to sublicense, grant any other right with respect to, or agree not to assert, any licensed right under any Patent, Know-How or other Intellectual Property right. When used as a noun, “Sublicense” means any agreement to Sublicense.

108. “Sublicensee” means an Affiliate or Third Party, other than a distributor, to whom a licensee (or an Affiliate) sublicenses any of the rights granted to the licensee during the term of the applicable agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

109. “Target” means a […***…]. The Targets as of the Effective Date are listed on Schedule A with an indication of […***…]. Additional Targets may be included after the Effective Date solely by updating Schedule A in accordance with Section 7.13.

110. “Targeting” means editing, engineering or modulating (including by means of gene knock-out, gene tagging, gene disruption, gene mutation, gene insertion, gene deletion, gene activation, gene silencing or gene knock-in) a Target or an Excluded Target or a Covered Target by means of hybridizing a guide RNA of the CRISPR/Cas Technology to such Target or Excluded Target or Covered Target.

111. “Technology Term” means from the Effective Date until the Company is no longer Developing Licensed Agents or Products.

112. “Territory” means all the countries of the world.

113. “Third Party” means any Person other than Bayer or CRISPR or any Affiliate of either Party.

114. “Third Party Obligations” means any financial or non-financial encumbrances, obligations, restrictions, or limitations imposed by an In-License Agreement, including field or territory restrictions, covenants, diligence obligations or limitations pertaining to enforcement of intellectual property rights.

115. “Third-Party Target” means a Target that is the subject of a license or similar grant of rights pursuant to an agreement between CRISPR or one of its Affiliates and a Third-Party; provided, that such Target was licensed in accordance with the procedures set forth in Section 3.7. For the avoidance of doubt, Third-Party Targets include all Excluded Targets.

116. “Transfer” means, with respect to any Interests, directly or indirectly, selling, assigning, transferring, conveying, exchanging, donating, devising, bequeathing, mortgaging, pledging, hypothecating or otherwise disposing of such Interests excluding in connection with the sale of all or substantially all the assets of (i) Bayer and its Affiliates and (ii) CRISPR and its Affiliates; provided, that in no event shall the selling, assigning, transferring, conveying, exchanging, donating, devising, bequeathing, mortgaging, pledging, hypothecating or otherwise disposing of any equity interest in a Party (whether directly or indirectly) shall be considered a Transfer of any Interest.

117. “United States” or “U.S.” means the fifty states of the United States of America and all of its territories and possessions and the District of Columbia.

118. “Valid Claim” means a claim (a) of any issued, unexpired United States or foreign Patent, which will not, in the country of issuance, have been donated to the public, disclaimed, nor held invalid or unenforceable by a court of competent jurisdiction in an unappealed or unappealable decision, or (b) of any United States or foreign patent application, which will not, in the country in question, have been cancelled, withdrawn or abandoned. Notwithstanding the foregoing, on a country-by-country basis, a patent application pending for more than seven years, or ten years for filings in Japan, will not be considered to have any Valid Claim for purposes of this Agreement unless and until a patent meeting the criteria set forth in clause (a) above with respect to such application issues.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) The following terms shall have the meanings defined in the Section or Schedule indicated. Unless otherwise noted, the indicated Section or Schedule refers to the appropriate Section or Schedule of the Joint Venture Agreement.

Term	Where defined
AAA Rules	Section 20.3(a)
Abandonment	Section 2.2.3 of the IPMA
Acquisition Transaction	Section 9.1(c)(ii)(2)
Acquisition Transaction Additional Funding Amount	Section 9.1(c)(ii)(2)
Acquisition Transaction Additional Payment	Section 9.1(c)(ii)(2)
Acquisition Transaction Funding Amount	Section 9.1(c)(ii)(2)
Acquisition Transaction Funding Date	Section 9.1(c)(ii)(2)
Additional Budgetary Funding Amount	Section 9.1(c)(ii)(1)
Additional Contribution	Section 9.1(c)(i)
Additional Information	Option Agreement
Affected Party	Section 17.1
Antitrust Condition	Option Agreement
Baseball Arbitration	Option Agreement
Bayer	Preamble
Bayer Additional Contribution Cap	Section 9.1(c)(i)
Bayer Commitment Amount	Section 9.1(a)
Bayer IP Contribution Agreement	Section 3.2(b)(v)
Bayer Non-Compete Period	Section 3.6(b)(i)
Bayer Services Agreement	Section 3.2(b)(iii)
Breach	Section 19.1(a)
Breaching Party	Section 19.1(a)
Budgetary Funding Notice	Section 9.1(c)(ii)(1)
Buffer Period	Option Agreement
Cash Requirements	Section 9.1(c)(ii)(1)
CEO	Section 8.2
CEO Acquisition Notice	Section 9.1(c)(ii)(2)
Closing Conditions	Section 3.2(b)
Company	Recitals
Company Organization Documents	Section 3.2(b)(i)
Compelled Party	Section 17.1
Conflicted CEO	Section 7.2(b)
Contribution Agreement	The first paragraph of the IPCA
Covered Target List	Section 7.13(c)
Third Party Firm	Section 7.13(c)
CRISPR AG	The first paragraph of CRISPR IPCA

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Term	Where defined
CRISPR Inc.	The first paragraph of CRISPR IPCA
CRISPR UK	The first paragraph of CRISPR IPCA
Cross-Field Expansion	Option Agreement
Cross-License Agreement	Section 3.2(b)(vii)
Cure Period	Section 19.1(a)
CRISPR	Preamble
CRISPR IP Contribution Agreement	Section 3.2(b)(x)
CRISPR Non-Compete Period	Section 3.6(b)(ii)
CRISPR Services Agreement	Section 3.2(b)(iv)
Deemed Cash Requirements	Section 9.1(c)(ii)(1)
Delayed TAF Amount	Section 3.2(b)(ii)
Dissolution	Section 16.2(b)
Effective Date	Section 3.2(b)
Evidence Related to Global Filings	Section 16.1(i)
Excluded Covered Targets	Section 3.6(i)
Excluded Target	Section 3.7
Exclusive Field Party	Option Agreement
Exclusive License	Section 2.1.1 of the Bayer and CRISPR IP Contribution Agreements
Executive Team	Section 8.1
Expected Cash	Section 9.1(c)(ii)(1)
First Installment	Section 3.2(b)(ii)
Form License Agreement	Section 3.2(b)(vi)
Funding Outside Date	Section 9.1(c)(iii)
Funding Shortfall Termination Period	Section 9.5(a)
HbF Target	Section 7.13(e)
Information	Section 17.1
Initial Budget	Section 8.11(a)
Initial Business Plan	Section 3.2(b)(xii)
Initial Contributions	Section 3.2(b)(ii)
Initial Investment Budget	Section 8.11(a)
Initial Period	Section 9.5(a)
Insolvency Event	Section 4.2.3 of the Cross License Agreement
Interests	Section 3.3
Intellectual Property Management Agreement	Section 3.2(b)(viii)
Investment Cap	Section 9.1(c)(ii)(2)
Joint Venture Agreement	The Recitals of the Bayer and CRISPR IP Contribution Agreements
JV Expansion	Option Agreement
Key Results Memo	Option Agreement
Management Board	Section 7.1
NC Affected Party	Section 3.6(e)

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Term	Where defined
Objective	Section 3.1
Offer Terms	Option Agreement
Opt-In Closing	Option Agreement
Opt-In Date	Option Agreement
Opt-In Effective Date	Option Agreement
Opt-In Fields	Option Agreement
Opt-In Package	Option Agreement
Opt-In Transaction	Option Agreement
Option Agreement	Section 3.2(b)(vi)
Outside Date	Section 3.2(b)
Permitted COC Transfer	Section 11.3
Preliminary Offer	Option Agreement
Primary Employer	Section 8.9(d)
Primary Indication Field	Option Agreement
Qualifications	Section 20.3(b)
Qualifying Offer	Option Agreement
Resolution Period	Section 20.1
Revised Offer	Option Agreement
Rolling Budget	Section 8.11(b)
Rolling Business Plan	Section 8.11(b)
Rolling Investment Budget	Section 8.11(b)
Seconded Employee	Section 8.9(c)
Signing Date	The first paragraph of each of the Cross License Agreement, the CRISPR IP Contribution Agreement, and the Bayer IP Contribution Agreement
Subsidiary Organization Documents	Section 3.2(b)(ix)
TAF Funding Event	Section 3.2(b)(ii)
Technology Access Fee	Section 3.2(b)(ii)
Technology Term	Section 1.4 of the Cross License Agreement
Term	Section 4.1
Third Party Firm	Section 7.13(c)
Third Party Target Transaction	Section 3.7
TRACR	The first paragraph of the CRISPR IP Contribution Agreements
Transaction Documents	Section 3.2(b)
Winning Offer	Option Agreement
Work Product	Section 8.9(d)

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.1

Fields/Allocation of Rights

[…***…]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(a)

Subscription Agreement

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(b)(ii)

Initial Contributions

Bayer Initial Contributions	CRISPR Initial Contributions
$105,000,000.00	$100,000.00

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(b)(iii)

Bayer Services Agreement

The Company or the applicable Local Operating Entity shall own all rights, title and interest in and to all work product (including Intellectual Property) created pursuant to the services provided under the Bayer Services Agreement, and Bayer and its Affiliates shall assign all rights to such work product to the Company or such Local Operating Entity.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(b)(iv)

CRISPR Services Agreement

The Company or the applicable Local Operating Entity shall own all rights, title and interest in and to all work product (including Intellectual Property) created pursuant to the services provided under the CRISPR Services Agreement, and CRISPR and its Affiliates shall assign all rights to such work product to the Company or such Local Operating Entity.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(b)(v)

Form of Bayer IP Contribution Agreement

BAYER IP CONTRIBUTION AGREEMENT

This BAYER IP CONTRIBUTION AGREEMENT (this "**Contribution Agreement**") is entered into as of March 16, 2016 (the "**Effective Date**"*)* by and between, on the one hand**,** VIVR LLP, a limited liability partnership duly incorporated under the laws of England and Wales ("**Company**"), and, on the other hand, BAYER AG, a German stock corporation (*Aktiengesellschaft*) **("BAYER").**

RECITALS

WHEREAS Bayer and CRISPR AG ("**CRISPR**"), pursuant to a Joint Venture Agreement, dated as of December 19, 2015, (the "**Joint Venture Agreement**"), have entered into a joint venture focused on exploring potential targets related to certain diseases and creating therapeutics using gene editing or engineering systems or technology, including the Bayer Background Technology, to treat diseases; and

WHEREAS, Bayer possesses certain Patents, Know-How, technology and expertise with respect to the Bayer Background Technology;

WHEREAS, Bayer desires to license such Bayer Background Technology to the Company in furtherance of the joint venture;

NOW, THEREFORE, in consideration of the respective covenants, representations, warranties and agreements set forth herein, the Parties hereto agree as follows:

ARTICLE 1.

DEFINITIONS

For purposes of this Contribution Agreement, the following capitalized terms will have the following meanings:

1.1. "**Action**" means any claim, action, cause of action, chose in action or suit (whether in contract or tort or otherwise), litigation (whether at law or in equity, whether civil or criminal), controversy, assessment, arbitration, examination, audit, investigation, hearing, charge, complaint, demand, notice or proceeding to, from, by or before any Governmental Authority or arbitrator(s).

1.2. "**Affiliate**" or "**Affiliates**" means, with respect to any entity, any Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such entity; and for the purposes of this definition, "control" (and the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such entity, directly or indirectly, whether through

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

the ownership of voting securities or by contract or otherwise. Without limiting the generality of the foregoing, a Person shall be deemed to control another Person if any of the following conditions is met: (a) in the case of corporate entities, direct or indirect ownership of at least fifty percent (50%) of the stock or shares having the right to vote for the election of directors, and (b) in the case of non-corporate entities, direct or indirect ownership of at least fifty percent (50%) of the equity interest with the power to direct the management and policies of such non-corporate entities. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and that in such case such lower percentage shall be substituted in the preceding sentence, provided that such foreign investor has the power to direct the management and policies of such entity. For the purposes of this Contribution Agreement, (i) no Party or any of its Affiliates shall be considered an Affiliate of any other Party or any of its Affiliates or of the Company or any of its Affiliates, and neither the Company nor any of its Affiliates shall be considered an Affiliate of any Party or any of its Affiliates, simply by virtue of this Contribution Agreement or the relationships created hereby or by the Company Organization Documents or any Local Operating Agreement, and (ii) no Person shall be considered an Affiliate of a Party solely as a result of their right to designate a member of such Party's board of directors.

1.3. "**Animal Models**" means laboratory animals useful for medical research because they exhibit characteristics that can be used for evaluating potential treatments of a human disease or disorder.

1.4. "**Approval Application**" means, with respect to a Licensed Product in a particular jurisdiction, an application for approval, license, registration or authorization necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, an application for approval for such Licensed Product by the FDA, and with respect to the European Union, an application for approval for such Licensed Product by the European Commission.

1.5. "**Bayer Background Know-How**" means any and all […***…].

1.6. "**Bayer Background Patents**" means any and all Patents […***…].

1.7. "**Bayer Background Technology**" means all Bayer Background Know-How and Bayer Background Patents.

1.8. "**Bayer Field**" means any Field under the heading "Bayer Field" on Schedule 3.1 of the Joint Venture Agreement.

1.9. "**Business Day**" means any day other than a Saturday, a Sunday or a day on which banks in New York City, United States of America or Frankfurt-Main, Germany or Leverkusen, Germany are authorized or obligated by applicable law or executive order to close.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.10. "**Change of Control**" means, with respect to Party, any of the following events: (a) any Person is or becomes the "beneficial owner" (as such term is used in Section 13(d) of the Securities Exchange Act of 1934, as amended, and Rule 13d-3 thereunder, except that a Person shall be deemed to have "beneficial ownership" of all shares that any such Person has the right to acquire, whether such right may be exercised immediately or only after the passage of time), directly or indirectly, of a majority of the total voting power represented by all classes of capital stock then outstanding of Party normally entitled to vote in elections of directors; (b) Party consolidates with or merges into another corporation or entity, or any corporation or entity consolidates with or merges into Party, other than (i) a merger or consolidation that would result in the voting securities of Party outstanding immediately prior to such merger or consolidation continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or any parent thereof) a majority of the combined voting power of the voting securities of Party or such surviving entity or any parent thereof outstanding immediately after such merger or consolidation, or (ii) a merger or consolidation effected to implement a recapitalization of Party (or similar transaction) in which no Person becomes the beneficial owner, directly or indirectly, of voting securities of Party representing a majority of the combined voting power of Party's then outstanding securities; or (c) Party conveys, transfers or leases all or substantially all of its assets to any Person other than a wholly-owned Affiliate of such Party; provided, that a financing transaction, the primary purpose of which is to raise capital for such Party, shall in no event be considered a Change of Control.

1.11. "**Clinical Trial**" means a study in humans that is designed to generate data in support of an Approval Application.

1.12. "**Commercialize**" or "**Commercialization**" means to market, promote, distribute, offer for sale, sell, have sold, import, export or otherwise commercialize a product, to conduct activities, other than, Development and Manufacturing, in preparation for the foregoing activities, including obtaining Price Approval, and to conduct Clinical Trials and post-Marketing Approval studies. When used as a noun, "Commercialization" means any and all activities involved in Commercializing.

1.13. "**Companion Diagnostic**" means any companion diagnostic tool and/or diagnostic assay, the manufacture, use, sale or importation of which is Covered by the Company Crispr/Cas Technology, Company Optimized Cas Technology, CRISPR Background Know-How and CRISPR Platform Technology Know-How, which is used to (i) identify patients who are most likely to benefit from a Licensed Agent or Product, (ii) identify patients likely to be at increased risk for serious adverse reactions as a result of treatment with a Licensed Agent and/or Product, and/or (iii) monitor a patient's response to a Licensed Agent and/or Product for the purpose of adjusting treatment (*e.g.*, schedule, dose, discontinuation) to achieve improved safety or effectiveness.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.14. "**Company CRISPR/Cas Know-How**" means any Know-How Controlled by the Company that constitutes an addition, amendment or enhancement to the Crispr/Cas Technology that is not Company Optimized Cas Know-How that is […***…].

1.15. "**Company CRISPR/Cas Patents**" means any Patents Controlled by Company claiming or disclosing any Company CRISPR/Cas Know-How.

1.16. "**Company CRISPR/Cas Technology**" means the Company CRISPR/Cas Know-How and the Company CRISPR/Cas Patents.

1.17. "**Company Non-Product Know-How**" means any and all Know-How Controlled by the Company during the Technology Term, including Delivery Technology and excluding Company CRISPR/Cas Know-How, Company Product Know-How and Company Optimized Cas Know-How, that, is […***…].

1.18. "**Company Non-Product Patents**" means any Patents Controlled by the Company claiming or disclosing any Company Non-Product Know-How.

1.19. "**Company Non-Product Technology**" means the Company Non-Product Know-How and the Company Non-Product Patents.

1.20. "**Company Optimized Cas Know-How**" means all Know-How related to enhancements, amendments or additions in and to any nuclease element of the CRISPR/Cas Technology […***…].

1.21. "**Company Optimized Cas Patents**" means any Patents claiming or Covering Company Optimized Cas Know-How.

1.22. "**Company Optimized Cas Technology**" means the Company Optimized Cas Know-How and Company Optimized Cas Patents.

1.23. "**Company Product Know-How**" means any and all Know-How Controlled by the Company during the Technology Term that relates to the composition or use of a Licensed Agent or Product in the Fields, including guide RNA complementary to a Target in combination with a nuclease element, that is […***…].

1.24. "**Control**" means with respect to any Know-How or Patent or other data, information or Materials, possession of the ability by a Party or its Affiliate(s) (whether by sole or joint ownership, license or otherwise, but in all cases not including when such rights are granted or obtained pursuant to the Transaction Documents) to grant, without violating the terms of any agreement with a Third Party, a license, access or other right in, to or under such Know-How or Patent or other data, information or Materials. Notwithstanding anything in the Transaction Documents to the contrary, a Party will be deemed to not Control any Patents or Know-How that are owned or controlled by a Third Party described in the definition of "Change of Control," or such Third Party's Affiliates (other than an Affiliate of such Party prior to the Change of Control), (a) prior to the closing of such Change of Control, except to the extent that any such Patents or Know-How were developed

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

prior to such Change of Control through the use of such Party's technology, or (b) after such Change of Control to the extent that such Patents or Know-How are developed or conceived by such Third Party or its Affiliates (other than such Party) after such Change of Control without using or incorporating such Party's technology. A Party does not need to amend any existing in-license as of the Effective Date so that such Party "Controls" any IP under such given in-license.

1.25. "**Cover**," "**Covering**" or "**Covers**" means, as to a product and Patent, that, in the absence of a license granted under, or ownership of, such Patent, the making, using, keeping, selling, offering for sale or importation of such product would infringe such Patent or, as to a pending claim included in such Patent, the making, using, selling, offering for sale or importation of such product would infringe such Patent if such pending claim were to issue in an issued patent without modification.

1.26. "**Covered Target**" means a Target as and for so long as such Target remains the subject of a license or similar grant of rights under the Existing Third Party Agreement. For the avoidance of doubt, Covered Targets shall not be deemed Third-Party Targets or Excluded Covered Targets.

1.27. "**CRISPR Background Know-How**" means any and all Know-How other than CRISPR Platform Technology Know-How Controlled by CRISPR, as of the Effective Date or that comes into the Control of CRISPR during the Technology Term, that is useful to or necessary for the Company to Develop, Manufacture or Commercialize Licensed Agents or Products in the Fields.

1.28. "**CRISPR Field**" means any Field under the heading "CRISPR Field" on Schedule 3.1 of the Joint Venture Agreement.

1.29. "**CRISPR Platform Technology Know-How**" means any […***…].

1.30. "**Crispr/Cas Technology**" means clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) protein system that comprises (a) at least one guide RNA element that is complementary to a Target, wherein said guide RNA element can be a guide RNA or a polynucleotide(s) encoding such guide RNA, and (b) a nuclease element, wherein said nuclease element is a Cas nuclease protein.

1.31. "**Delivery Technology**" means methods, formulations, technologies and systems, including vectors, for transporting a Licensed Agent or Product into or within the human body or into human cells outside of the body.

1.32. "**Develop**" or "**Development**" means, with respect to a Licensed Agent, all clinical and non-clinical research and development activities conducted for such Licensed Agent, including toxicology, pharmacology test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, Clinical Trials (other than post-Marketing Approval Clinical Trials), regulatory affairs, pharmacovigilance, Clinical Trial regulatory activities and obtaining and maintaining Regulatory Approval. When used as a verb, "Develop" or "Developing" means to engage in Development.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.33. "**EMA**" means the European Medicines Agency and any successor entity thereto.

1.34. "**European Commission**" means the European Commission or any successor entity that is responsible for granting Marketing Approvals authorizing the sale of pharmaceuticals in the European Union.

1.35. "**Existing Third Party Agreement**" means that certain Strategic Collaboration, Option and License Agreement entered into by and between CRISPR (and certain of its Affiliates) and Vertex Pharmaceuticals, Incorporated (and certain of its Affiliates) dated as of October 26, 2015.

1.36. "**FDA**" means the United States Food and Drug Administration and any successor agency thereto.

1.37. "**Fields**" means the CRISPR Fields and the Bayer Fields, provided fields shall not include diagnosis, prevention or treatment of cystic fibrosis.

1.38. "**Governmental Authority**" means any court, agency, authority, department, regulatory body or other instrumentality of any government or country or of any national, federal, state, provincial, regional, county, city or other political subdivision of any such government or any supranational organization of which any such country is a member.

1.39. "**Human Therapeutic Use**" means the use of the CRISPR/Cas Technology for use in the discovery, research and development of products for the treatment or prevention of any human disease, disorder or condition, including researching, developing, making, using or selling Licensed Agents or Products and Companion Diagnostics.

1.40. "**In-License Agreement**" means the agreements with Third Party licensors under which the Bayer Background Technology is being licensed by Bayer.[1]

1.41. "**Intellectual Property**" means (i) patents (including utility, design, plant, utility model, reissues, re-examination, and patents of addition), patent applications (filed, unfiled or being prepared), records of invention, (ii) trademarks (registered or unregistered), trademark applications, trade names, copyrights (registered or unregistered), copyright applications, mask works, service marks (registered or unregistered), service mark applications, database rights (registered or unregistered), all together with the goodwill associated with such marks or names, (iii) trade secrets, technology, inventions, know-how, processes and confidential and proprietary information, including any being developed (including but not limited to designs, manufacturing data, design data, test data, operational data, and formulae), whether or not recorded in tangible form through drawings, software, reports, manuals or other tangible expressions, whether or not subject to statutory registration, anywhere, and all rights to any of the foregoing.

1 Note: "Bayer Licensed Technology" changed to "Bayer Background Technology",

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.42. "**Joint Know-How**" means Know-How discovered, developed, invented or created jointly by (a) the Company or a Local Operating Entity and (b) either or both of: (i) CRISPR, its Affiliates or Third Parties acting on CRISPR's behalf (but excluding when any such entities are acting for or on behalf of the Company or a Local Operating Entity, including without limitation, CRISPR acting in performance of services for the Company or a Local Operating Entity), or (ii) Bayer, its Affiliates or Third Parties, acting on Bayer's behalf (but excluding when any such entities are acting for or on behalf of the Company or a Local Operating Entity, including without limitation, Bayer acting in performance of services for the Company).

1.43. "**Joint Patents**" means any Patents claiming or Covering any Joint Know-How.

1.44. "**Know-How**" means Intellectual Property, data, results, pre-clinical and clinical protocols and data from studies and Clinical Trials, chemical structures, chemical sequences, information, inventions, know-how, formulas, trade secrets, techniques, methods, processes, procedures and developments, whether or not patentable; provided that Know-How does not include Patents claiming any of the foregoing.

1.45. "**Knowledge**" means, with respect to Bayer, the actual knowledge of […***…] after having made reasonable inquiries of Bayer personnel and advisors that would reasonably be anticipated to have knowledge of facts relating to the relevant subject matter.

1.46. "**Law**" or "**Laws**" means all applicable laws, statutes, rules, regulations and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, agency or other body, domestic or foreign, including any applicable rules, regulations, guidelines, or other requirements of the Regulatory Authorities that may be in effect from time to time.

1.47. "**Licensed Agent**" means a product comprising (a) all components of a Crispr/Cas Technology, for Targeting a Target, where such Crispr/Cas Technology, or any portion thereof is discovered by or on behalf of the Company or a Local Operating Entity (solely or jointly with such entities), or is in the Company's or a Local Operating Entity's Control, prior to the Effective Date, or during the Technology Term or (b) modified human cells or tissue, or another cell- or tissue-based product, or any other therapeutic product comprising or produced using the Crispr/Cas Technology, in each case produced using the components referred to in clause (a).

1.48. "**Licensed Product**" means any Product that (i) has been licensed by a Party following opt-in or (ii) licensed to a Third Party. All Products comprising the same Licensed Agent(s) (and no additional Licensed Agents) will be considered the same Licensed Product under this Contribution Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.49. "**Local Operating Agreement**" means, as applicable, any agreement governing the formation and operation of any Local Operating Entity formed pursuant to Section 3.3 of the Joint Venture Agreement.

1.50. "**Local Operating Entity**" means any local operating entity formed by the Company pursuant to Section 3.3 of the Joint Venture Agreement.

1.51. "**Manufacture**" or "**Manufacturing**" means activities directed to making, having made, producing, manufacturing, processing, filling, finishing, packaging, labeling, quality control testing and quality assurance release, shipping or storage of a product.

1.52. "**Marketing Approval**" means, with respect to a Licensed Product in a particular jurisdiction, all approvals, licenses, registrations or authorizations necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, approval of an Approval Application for such Licensed Product by the FDA and with respect to the European Union, approval of an Approval Application for such Licensed Product by the European Commission.

1.53. "**Materials**" means all biological materials or chemical compounds arising out of a Party's activities under this Contribution Agreement or otherwise provided by a Party for use by the other Party to conduct activities pursuant to this Contribution Agreement, including Licensed Agents, Clinical Trial samples, cell lines, assays, viruses and vectors.

1.54. "**Non-Human Therapeutic Uses**" means uses (a) other than Human Therapeutic Uses, and (b) for the discovery and research and preclinical development of products for the diagnosis, treatment or prevention of any human disease, disorder or condition, but excluding research, developing, making, using or selling Licensed Agents or Products or Companion Diagnostics.

1.55. "**Party**" or "**Parties**" means, when used in singular, any signatory to the applicable agreement, as the context may require, and when used in plural, all signatories to the applicable agreement, and any permitted successor or assign thereto.

1.56. "**Patents**" means the rights and interests in and to issued patents and pending patent applications and similar government-issued rights (*e.g.*, utility models) protecting inventions in any country, jurisdiction or region (including inventor's certificates and utility models), including all priority applications, international applications, provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing.

1.57. "**Person**" means any individual, partnership, limited partnership, limited liability company, joint venture, syndicate, sole proprietorship, company or corporation with or without share capital, unincorporated association, trust, trustee, executor, administrator or other legal personal representative or governmental body.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.58. "**Price Approval**" means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

1.59. "**Product**" means any pharmaceutical product, medical therapy, preparation, substance, or formulation comprising or employing, in whole or in part, a Licensed Agent.

1.60. "**Prosecution and Maintenance**" or "**Prosecute and Maintain**" means, with regard to a Patent, the preparing, filing, prosecuting and maintenance of such Patent, as well as handling re-examinations and reissues with respect to such Patent, together with the conduct of interferences, the defense of oppositions and other similar proceedings with respect to the particular Patent. For clarification, Prosecution and Maintenance or Prosecute and Maintain will not include any other enforcement actions taken with respect to a Patent.

1.61. "**Regulatory Approval**" means the technical, medical and scientific licenses, registrations, authorizations and approvals (including approvals of Approval Applications, supplements and amendments, pre- and post- approvals, and labeling approvals) of any Regulatory Authority, necessary for the research, Development, clinical testing, commercial manufacture, distribution, marketing, promotion, offer for sale, use, import, export or sale of a pharmaceutical product in a regulatory jurisdiction, including Marketing Approval.

1.62. "**Regulatory Authority**" means, with respect to a country in the Territory, any national (*e.g.*, the FDA), supra-national (*e.g.*, the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Price Approvals for pharmaceutical products in such country or countries.

1.63. "**Sublicense**" means, directly or indirectly, to sublicense, grant any other right with respect to, or agree not to assert, any licensed right under any Patent, Know-How or other Intellectual Property right. When used as a noun, "Sublicense" means any agreement to Sublicense.

1.64. "**Sublicensee**" means an Affiliate or Third Party, other than a distributor, to whom a licensee (or an Affiliate) sublicenses any of the rights granted to the licensee during the term of the applicable agreement.

1.65. "**Target**" means a […***…]. The Targets as of the Effective Date are listed on Schedule A of the Joint Venture Agreement with an indication of […***…]. Additional Targets may be included after the Effective Date solely by updating Schedule A in accordance with Section 7.13 of the Joint Venture Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.66. "**Targeting**" means editing, engineering or modulating (including by means of gene knock-out, gene tagging, gene disruption, gene mutation, gene insertion, gene deletion, gene activation, gene silencing or gene knock-in) a Target or an Excluded Target or a Covered Target by means of hybridizing a guide RNA of the CRISPR/Cas Technology to such Target or Excluded Target or Covered Target.

1.67. "**Technology Term**" means from the Effective Date until the Company is no longer Developing Licensed Agents or Products.

1.68. "**Territory**" means all the countries of the world.

1.69. "**Third Party**" means any Person other than Bayer or CRISPR or any Affiliate of either Party.

1.70. "**Third Party Obligations**" means any financial or non-financial encumbrances, obligations, restrictions, or limitations imposed by an In-License Agreement, including field or territory restrictions, covenants, diligence obligations or limitations pertaining to enforcement of intellectual property rights.

1.71. "**Third-Party Target**" means a Target that is the subject of a license or similar grant of rights pursuant to an agreement between CRISPR or one of its Affiliates and a Third-Party; provided, that such Target was licensed in accordance with the procedures set forth in Section 3.7 of the Joint Venture Agreement. For the avoidance of doubt, Third-Party Targets include all Excluded Targets.

1.72. "**United States**" or "**U.S.**" means the fifty states of the United States of America and all of its territories and possessions and the District of Columbia.

1.73. The following terms shall have the meanings defined in the Section or Schedule indicated. Unless otherwise noted, the indicated Section or Schedule refers to the appropriate Section or Schedule of this Contribution Agreement.

Term	Where defined
Bayer	The first paragraph
Company	The first paragraph
Company Organization Documents	Section 3.2(b)(i) of the Joint Venture Agreement
Contribution Agreement	The first paragraph
CRISPR	The first recital
Effective Date	The first paragraph
Excluded Covered Targets	Section 3.6(i) of the Joint Venture Agreement
Exclusive License	Section 2.1.1
Excluded Target	Section 3.7 of the Joint Venture Agreement
HSR Act	Section 2.4
Interests	Section 3.3 of the Joint Venture Agreement

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Term	Where defined
Information	Section 4.1 of the Intellectual Property Management Agreement
Intellectual Property Management Agreement	Section 3.2(b)(viii) of the Joint Venture Agreement
Joint Venture Agreement	The first recital
Permitted COC Transfer	Section 11.3 of the Joint Venture Agreement
Transaction Document	Section 3.2 of the Joint Venture Agreement

ARTICLE 2.
LICENSE GRANT TO COMPANY

2.1. **License Grant to Company.**

2.1.1. **License Grant**. Bayer hereby grants to Company an irrevocable (except as specified in the Joint Venture Agreement), worldwide, royalty-free, fully paid-up, sublicenseable (solely as permitted by Section 2.1.2), exclusive license under Bayer's and its Affiliates' interest in and to the Bayer Background Technology to Develop, Manufacture, have Manufactured, use, keep, sell, offer for sale, import, have imported export and Commercialize Licensed Agents and Products in the Fields in the Territory excluding all rights related to using Animal Models with any Licensed Agents and Products to the extent such agents or products are Targeting an Excluded Target or Covered Target (such license, the "**Exclusive License**").

2.1.2. **Sublicenses.** Provided the Company is licensing technology it Controls (other than the technology licensed to it under a Transaction Document) in the same transaction, subject to the terms of this Contribution Agreement, Company may grant sublicenses through multiple tiers of sublicense to one or more Sublicensees of any and all rights granted to Company by Bayer under the Exclusive License. Each such Sublicense will be subject and subordinate to, and consistent with, the terms and conditions of this Contribution Agreement and will require such Sublicensee to comply with all applicable terms of this Contribution Agreement and all Third Party Obligations. Notwithstanding the grant of any Sublicense, Company shall remain primarily liable to Bayer for the performance of all of Company's obligations under, and Company's compliance with all provisions of, this Contribution Agreement.

2.1.3. **License Conditions; Limitations**. Any rights and obligations hereunder, including the rights granted pursuant to any Exclusive License are subject to and limited by any applicable license from a Third Party within the Bayer Background Technology.

2.1.4. **Financial Obligations for technology licensed from Third Parties**. To the extent that there are financial obligations associated with any technology licensed by Bayer from Third Parties, the Party using such technology shall be responsible for such financial obligations; provided that, Bayer shall provide prior notice of such financial obligations and shall be responsible for any financial obligations if prior notice is not provided.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.2. **Company License Grants.**

2.2.1. Except as specified in Article 16 of the Joint Venture Agreement, Company hereby grants to Bayer a perpetual, irrevocable, royalty-free, fully paid-up, worldwide, sublicenseable, license in and to the Company Crispr/Cas Technology, which right shall be exclusive, to develop, Manufacture, have Manufactured, use, sell, keep, offer for sale and import, have imported, export and Commercialize products for Non-Human Therapeutic Uses.

2.2.2. Except as specified in Article 16 of the Joint Venture Agreement, Company hereby grants to Bayer a perpetual, irrevocable, royalty-free, fully paid-up, worldwide, sublicenseable, license in and to the Company Non-Product Technology, which right shall be non-exclusive, to make, have made, use, sell, keep, offer for sale and import products.

2.2.3. Except as specified in Article 16 of the Joint Venture Agreement, Company hereby grants to Bayer a perpetual, irrevocable, royalty-free, fully paid-up, worldwide, sublicenseable, license in and to the Company Optimized Cas Technology, which right shall be exclusive, to develop, Manufacture, have Manufactured, use, sell, keep, offer for sale and import, have imported, export and Commercialize products for Non-Human Therapeutic Uses.

2.3. **No Implied Licenses**. All rights in and to Bayer Intellectual Property not expressly licensed or assigned to the Company under this Contribution Agreement are hereby retained by Bayer or its Affiliates. All rights in and to any Company Intellectual Property not expressly licensed to Bayer under this Contribution Agreement, are hereby retained by the Company or its Affiliates. Except as expressly provided in this Contribution Agreement, no Party will be deemed by estoppel or implication to have granted the other Party any licenses or other right with respect to any Intellectual Property.

2.4. **HSR**. Prior to granting a license to Patents hereunder, Bayer shall provide the Company and CRISPR with written notice of the same. In furtherance of granting licenses to Patents to the Company hereunder in the future, if required, prior to such Patents being licensed hereunder, Bayer and Company shall, and Company and Bayer shall work with CRISPR to, (a) take promptly all actions necessary to prepare any filings, or cause their "ultimate parent entities" as that term is defined in the Hart-Scott-Rodino Antitrust Improvement Act of 1976 as amended (the "HSR Act") or relevant regulations to promptly prepare any filings required of any of them under the HSR Act, which shall each be filed with the appropriate Governmental Authorities within […***…] of the date of the notice, and each such filing shall request the early termination of the waiting period required by the HSR Act; (b) use commercially reasonable efforts to comply at the earliest practicable date with any request for additional information received by any of them from the Federal Trade Commission or the Antitrust Division of the Department of Justice or any other Governmental Authority with authority regarding antitrust or competition matters; and (c) reasonably cooperate with each other in connection with the preparation and making of any such filings and the clearance of the contemplated transactions under antitrust or competition Law. […***…] Each Party agrees to

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

notify the other Party promptly of any material communication from a Governmental Authority regarding the contemplated transactions. Without limiting the generality of the foregoing, each Party shall provide the other Party (or its representatives) upon request copies of all correspondence and written productions between such Party and any Governmental Authority relating to the contemplated transactions. The Parties may, as they deem advisable, designate any competitively sensitive materials provided to the other Party as "outside counsel only." Such materials and the information contained therein shall be given only to outside counsel of the recipient and will not be disclosed by such outside counsel to employees, officers, or directors of the recipient without the advance consent of the Party providing such materials. Subject to applicable Law, the Parties will consult and cooperate with each other in connection with any analyses, appearances, presentations, memoranda, briefs, arguments, and proposals made or submitted to any Governmental Authority regarding the contemplated transactions by or on behalf of any Party.

2.5. If the filings under the HSR Act are required, the effective date of the license of any applicable Patents shall be delayed until any applicable waiting periods (and any extensions thereof) under the HSR Act have expired or otherwise been terminated.

ARTICLE 3.

INTELLECTUAL PROPERTY MATTERS

3.1. **Intellectual Property Matters.** Subject to the rights and licenses granted herein, the rights and obligations of the Parties with respect to the ownership of, use, preparation, prosecution, maintenance and enforcements of Know-How and Patents arising under the activities performed in the exercise of rights licensed or retained hereunder shall be governed by the Intellectual Property Management Agreement.

3.2. **No Other Rights**. Except as otherwise expressly provided in this Contribution Agreement, under no circumstances will a Party or any of its Affiliates, as a result of this Contribution Agreement, obtain any ownership interest, license or other right in or to any Know-How, Patents or other Intellectual Property of the other Party, including tangible or intangible items owned, controlled or developed by the other Party, or provided by the other Party to the receiving Party at any time, pursuant to this Contribution Agreement. Neither Party nor any of its Affiliates will use or practice any Know-How, Materials or Patents licensed or provided to such Party or any of its Affiliates outside the scope of or otherwise not in compliance with the rights and licenses granted to such Party and its Affiliates under this Contribution Agreement, except to the extent an unlicensed Third Party could use such Bayer Background Technology.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

3.3. **Unauthorized Use of Bayer Background Technology.** Company shall institute reasonable procedures to prevent Bayer Background Technology from being used for anything outside of the Field in the Territory. After receiving notice from Bayer alleging a specific breach, Company will investigate (with Bayer having the right to participate in such investigation) such use of Bayer Background Technology, and if Company identifies any such unauthorized use of Bayer Background Technology, Company shall immediately cease such use and implement reasonable procedures to prevent such unauthorized use of Bayer Background Technology in the future.

3.4. **Bayer Background Technology that is licensed by Bayer from a Third Party**. With regard to Bayer Background Technology that is licensed by Bayer from a Third Party, and which the Company has notified Bayer it wishes to use in connection with Development of a Product, Bayer shall use reasonable efforts to obtain the right to further license such technology to the Company and for the Company to license such Technology to CRISPR if it opts into a Licensed Product or to a Third Party that acquires a license to a Licensed Product, if such rights are necessary for the commercialization of the Licensed Product. Nothing in this Section will require Bayer to incur any additional cost or expense to obtain such rights or to amend any existing license except to the extent of acquiring such rights as described in this Section. If additional costs or expenses are necessary to obtain such rights, the Parties shall discuss in good faith the payment of such costs or expenses.

ARTICLE 4.
REPRESENTATIONS AND WARRANTIES

4.1. **Representations and Warranties of Company**. Company hereby represents and warrants to Bayer, as of the Effective Date, that:

4.1.1. Company is a limited liability partnership, duly incorporated and validly existing under the laws of England and Wales;

4.1.2. Company (a) has the requisite power and authority and the legal right to enter into this Contribution Agreement and to perform its obligations hereunder and (b) has taken all requisite action on its part to authorize the execution and delivery of this Contribution Agreement and the performance of its obligations hereunder;

4.1.3. Company has the requisite resources and expertise to perform its obligations hereunder;

4.1.4. the execution, delivery and performance of this Contribution Agreement by Company (a) will constitute legal, valid, binding and enforceable obligations on it and (b) will not constitute a default under or conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it is bound, or violate any law or regulation of any court, governmental body or administrative or other agency having jurisdiction over Company; and

4.1.5. Company has obtained all necessary consents, approvals and authorizations of all Governmental Authorities and other Persons or entities required to be obtained by it in connection with the execution and delivery of this Contribution Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.2. **Representations and Warranties of Bayer**. Bayer hereby represents and warrants to Company, as of the Effective Date, that, except as otherwise set forth on Schedule 4.2:

4.2.1. Bayer is duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization and has full corporate power and authority to enter into this Contribution Agreement and to carry out the provisions hereof;

4.2.2. Bayer (a) has the requisite power and authority and the legal right to enter into this Contribution Agreement and to perform its obligations hereunder and (b) has taken all requisite action on its part to authorize the execution and delivery of this Contribution Agreement and the performance of its obligations hereunder;

4.2.3. this Contribution Agreement has been duly executed and delivered on behalf of Bayer, and constitutes a legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, except to the extent that the enforceability may be affected by bankruptcy, insolvency, and other laws of general application affecting the enforcement of creditors' rights and by general principles of equity that may limit the availability of equitable remedies;

4.2.4. the execution, delivery and performance of this Contribution Agreement by Bayer will not constitute a default under or conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it is bound, or violate any Law or regulation of any court, governmental body or administrative or other agency having jurisdiction over it;

4.2.5. Bayer has obtained all necessary consents, approvals and authorizations of all Governmental Authorities and other Persons or entities required to be obtained by Bayer in connection with the execution and delivery of this Contribution Agreement;

4.2.6. Bayer is the sole and exclusive owner or exclusive licensee of the Bayer Background Technology, all of which is free and clear of any liens, charges and encumbrances, and, as of the Effective Date, neither any license granted by Bayer to any Third Party, nor any license granted by any Third Party to Bayer conflicts with the license grants to Company hereunder and Bayer is entitled to grant all rights and licenses (or sublicenses, as the case may be) under such Bayer Background Technology it purports to grant to Company under this Contribution Agreement;

4.2.7. Schedule 4.2.7 sets forth a true, correct and complete list of (i) all Bayer Background Patents as of the Effective Date, indicating for each such patent (a) whether it is the subject of an application, certificate, filing, registration or other document issued, filed with, or recorded by any governmental entity,

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

and specifying, where applicable, the jurisdiction in which such Patents Controlled by Bayer have been issued or registered or in which jurisdiction an application for such issuance and registration has been filed, including, as applicable, the respective registration and application numbers, the names of all registered owners or applicants, and the filing and expiration dates thereof , (b) whether such Patent is owned by Bayer or licensed by Bayer from a Third Party and if so, identifies the licensor or sublicensor from which the Patent is licensed, and (c) all material agreements relating to Bayer Background Technology, including but not limited to, licenses, royalty-bearing agreements, material transfer agreements, manufacturing agreements, service agreements, pre-clinical/clinical trial agreements, research agreements, joint venture agreements, and collaboration agreements;

4.2.8. the Bayer Background Technology constitutes all of the Patents and Know-How Controlled by Bayer that are necessary to Develop, Manufacture or Commercialize Licensed Agents and Products in the Field as contemplated under the Joint Venture Agreement;

4.2.9. Bayer has independently developed all Bayer Background Technology or otherwise has a valid right to use, and to permit Company and Company's Sublicensees to use, the Bayer Background Technology for all permitted purposes under this Contribution Agreement;

4.2.10. the Bayer Background Know-How is free and clear of liens, charges or encumbrances other than licenses granted to Third Parties that are not inconsistent with the rights and licenses granted to Company hereunder;

4.2.11. No Third Party has challenged the extent, validity or enforceability of Bayer Background Technology (including by way of example through the institution or written threat of institution of interference, nullity or similar invalidity proceedings before the United States Patent and Trademark Office or any analogous foreign Governmental Authority), and to Bayer's Knowledge (a) no Third Party is infringing any such Patents and (b) such Patents are, or, upon issuance, will be, valid and enforceable patents.

4.2.12. Bayer has not challenged any Third Party Intellectual Property by filing any interference, derivation, reexamination, inter partes review, post grant challenge, cancellation, nullity action, Third Party observations, or opposition proceeding;

4.2.13. it has complied with all applicable Laws, including any disclosure requirements of the United States Patent and Trademark Office or any analogous foreign Governmental Authority, in connection with the Prosecution and Maintenance of the Bayer Background Patents and has timely paid all filing and renewal fees payable with respect to any such Patents for which it controls Prosecution and Maintenance;

4.2.14. there are no contracts which require the payment of royalties by Bayer or its Affiliates with respect to the use of the Bayer Background Patents. For each contract disclosed on Schedule 4.2.14, the Schedule 4.2.14 sets forth the date on which such royalty was first paid, the royalty rate being paid by Bayer as of the Effective Date, and the royalty term;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.2.15. it has obtained assignments from the inventors of all inventorship rights relating to the Bayer Background Patents that it owns, and all such assignments of inventorship rights relating to such Patents are valid and enforceable and properly recorded;

4.2.16. except for Bayer's In-License Agreements, there is no agreement between Bayer (or any of its Affiliates) and any Third Party pursuant to which Bayer has acquired Control of any of the Bayer Background Technology, and no Third Party has any right, title or interest in or to, or any license under, any of the Bayer Background Technology. All of Bayer's In-License Agreements are in full force and effect and have not been modified or amended (except for amendments provided to Company prior to the Effective Date). To Bayer's Knowledge, the Third Party licensor in any of Bayer's In-License Agreements is not in default with respect to a material obligation under any of such In-License Agreements, and neither party has claimed or has grounds upon which to claim that the other party is in default with respect to a material obligation under, any of Bayer's In-License Agreements;

4.2.17. Bayer and its Affiliates have taken commercially reasonable measures consistent with industry practices to protect the secrecy, confidentiality and value of all Bayer Background Know-How that constitutes trade secrets under applicable Law (including requiring all employees, consultants and independent contractors to execute binding and enforceable agreements requiring all such employees, consultants and independent contractors to maintain the confidentiality of such Bayer Background Know-How) and, to Bayer's Knowledge, such Bayer Background Know-How has not been used, disclosed to or discovered by any Third Party except pursuant to such confidentiality agreements and there has not been a breach by any party to such confidentiality agreements;

4.2.18. no Bayer Background Technology is subject to any funding agreement with any government or governmental agency and Bayer is not subject to any domestic manufacturing requirement and is free to manufacture any goods for its business as contemplated in any country;

4.2.19. to Bayer Knowledge, the Development, Manufacture, use, sale, offer for sale, supply or importation by Bayer or Company (or their respective Affiliates or Sublicensees) of a Licensed Agent or Product does not and will not infringe any issued patent of any Third Party or, if and when issued, any claim within any patent application of any Third Party or misappropriate any Third Party technology;

4.2.20. Bayer has not filed or made any oral or written claim against any Person alleging any infringement, misappropriation, or other violation of any Bayer Background Technology;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.2.21. there are no judgments or settlements against or owed by Bayer, pending or, to Bayer's Knowledge threatened claims or litigation, in either case relating to the Bayer Background Technology;

4.2.22. there is no action, claim, demand, suit, proceeding, arbitration, grievance, citation, summons, subpoena, inquiry or investigation of any nature, civil, criminal, regulatory or otherwise, in law or in equity, pending or, to Bayer's Knowledge, threatened against Bayer, any of its Affiliates or any Third Party, in each case in connection with the Bayer Background Technology, or relating to the transactions contemplated by this Contribution Agreement; and

4.2.23. Bayer has not employed (and, to such Bayer's Knowledge, has not used a contractor or consultant that has employed) any Person debarred by the FDA (or subject to a similar sanction of EMA or foreign equivalent), or any Person that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMA or foreign equivalent), in any capacity in connection with this Contribution Agreement.

4.3. **Bayer Covenants**. Bayer hereby covenants to Company that, except as expressly permitted under this Contribution Agreement:

4.3.1. It will not amend, modify or terminate any of Bayer's In-License Agreements in a manner that would have a material adverse effect on Company's rights hereunder without first obtaining Company's consent; and

4.3.2. It will not enter into any new agreement or other obligation with any Third Party, or amend an existing agreement with a Third Party, in each case that would have a material adverse effect on Company's rights hereunder without first obtaining Company's consent.

4.4. **Consequence of Breach of Representations and Warranties.** In addition to any consequences as specified in Section 5.2, Bayer acknowledges and agrees that Company would be damaged irreparably in the event Bayer breaches any of the provisions of Sections 4.2 or 4.3. Accordingly, Bayer agrees that, without posting a bond or other undertaking, Company may seek an injunction or injunctions to prevent breaches or violations or specific performance of the provisions of Sections 4.2 or 4.3 and to enforce specifically such Sections and the terms and provisions thereof in any Action instituted in any court hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any Action between the parties arising in whole or in part under or in connection with Sections 4.2 and 4.3. An Action for specific performance as provided herein shall not preclude a Party from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Contribution Agreement. Bayer further agrees that, in the event of any Action for an injunction or specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.5. **Disclaimer**. Except as otherwise expressly set forth in this Contribution Agreement, neither Party nor its Affiliates makes any representation or extends any warranty of any kind, either express or implied, including any warranty of merchantability or fitness for a particular purpose. Company and Bayer understand that each Product is the subject of ongoing research and Development and that neither Party can assure the safety, usefulness or commercial or technical viability of any Product.

ARTICLE 5.
TERM; TERMINATION

5.1. **Contribution Agreement Term; Expiration**. This Contribution Agreement is effective as of the Effective Date and shall terminate upon termination of the Joint Venture Agreement.

5.2. **Consequences of Expiration or Termination of the Contribution Agreement**.

5.2.1. If this Contribution Agreement terminates in accordance with Section 5.1, the terms of Section 16.2 of the Joint Venture Agreement shall determine the consequences of termination of the Contribution Agreement.

5.2.2. The following provisions of this Contribution Agreement will survive any termination of this Contribution Agreement: 4.5 and Articles 6, 7, 8 and 9.

ARTICLE 6.
CONFIDENTIALITY

6.1. **Confidentiality.** All Information under this Contribution Agreement shall be governed by the Confidentiality provisions specified in Article 4 of the Intellectual Property Management Agreement and such Article 4 is hereby incorporated by reference.

ARTICLE 7.
DISPUTE RESOLUTION

7.1. **Referral to Heads of Businesses.** Unless otherwise specified in this Contribution Agreement, the Parties hereby agree that to the extent reasonably practicable and would not materially prejudice a Party, controversies or claims arising out of or relating to this Contribution Agreement or the interpretation, performance, breach, termination or validity thereof shall first be referred to the head of Bayer AG's Head of R&D and Company's Chief Executive Officer for resolution. If these individuals are unable to agree upon a resolution within […***…] after referral of the matter to them then either Party may pursue any available remedy hereunder, at law or in equity.

7.2. **Attorneys' Fees.** If any action at law or in equity (including, arbitration) is necessary to enforce or interpret the terms of this Contribution Agreement, including claims for fraud and/or fraudulent inducement, the prevailing Party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other relief to which such Party may be entitled.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.3. **Jurisdiction.** Unless otherwise specified in this Contribution Agreement, each Party to this Contribution Agreement, by its execution hereof, unless otherwise prohibited by applicable Law (i) hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any action among the Parties, (ii) hereby waives and agrees not to assert, by way of motion, as a defense or otherwise, in any such action, any claim that it is not subject personally to the jurisdiction of the above-named courts, that any such action brought in one of the above-named courts should be dismissed on grounds of forum non conveniens, should be transferred or removed to any court other than one of the above-named courts, or should be stayed by reason of the pendency of some other proceeding in any court other than one of the above-named courts, or that this Contribution Agreement or the subject matter hereof may not be enforced in or by such court and (iii) to the extent that an action can be commenced in a court, agrees not to commence any such action in any court other than before one of the above-named courts. Notwithstanding the previous sentence, a Party hereto may commence any action in a court other than the above-named courts for the purpose of enforcing an order or judgment issued by one of the above-named courts.

7.4. **Venue**. No Party hereto will assert that venue should properly lie in any other location within the selected jurisdiction.

7.5. **Specific Performance**. Each of the Parties hereto acknowledges and agrees that the other Party would be damaged irreparably in the event any of the provisions of this Contribution Agreement are not performed in accordance with their specific terms or otherwise are breached or violated. Accordingly, each of the Parties hereto agrees that, without posting a bond or other undertaking, the other Party may seek (and obtain) an injunction or injunctions to prevent breaches or violations of the provisions of this Contribution Agreement and to enforce specifically this Contribution Agreement and the terms and provisions hereof in any Action instituted in any court specified herein. An Action for specific performance as provided herein shall not preclude a Party hereto from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Contribution Agreement. Each Party hereto further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate provided, however, each Party hereto also agrees that any Party hereto can assert any other defense it may have other than the defense of adequate remedy at law.

7.6. **Governing Law.** The Parties agree that this Contribution Agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 8.
ASSIGNMENT

8.1. **Assignment**. Except as permitted under the Joint Venture Agreement (including a Permitted COC Transfer complying with Article 11 of the Joint Venture Agreement) or this Contribution Agreement, (a) any of the rights, interests and obligations created herein shall not be transferred or assigned to any Third Party and such rights and interests shall not inure to the benefit of any other Person, including any trustee in bankruptcy, receiver or other successor of either of the Parties, whether by operation of Law, sub-license, transfer of the assets, merger, liquidation or otherwise, without the prior written consent of the other Party, and (b) any purported or actual transfer or assignment of any such rights, interests or obligations without the prior written consent of the other Party is and shall be null and void ab initio; provided, however, that either of the Parties may, without consent of the other Party, assign its respective rights and obligations under this Contribution Agreement to a successor company of such Party as the result of an internal corporate reorganization to a wholly-owned Affiliate of such Party; provided that the assigning Party shall remain primarily liable hereunder. In addition to the requirements of the prior sentence, if this Contribution Agreement is assigned to a Third Party by a Party, as a condition to such assignment, all other Transaction Documents to which such Party is a party shall concurrently be assigned to such Third Party and all Interests of such Party and its Affiliates are to be transferred to such Third Party.

ARTICLE 9.
NOTICES AND MISCELLANEOUS

9.1. **Form of Valid Notice.**

(a) All notices or other communications provided for in this Contribution Agreement or that may otherwise be required must be in writing, clearly legible and shall be sent:

(i) by an internationally recognized courier service with acknowledgment of receipt, properly addressed, and postage pre-paid;

(ii) by e-mail; or

(iii) by personal delivery.

(b) Any notice sent by one of the means described in Section 9.1(a) will be deemed received:

(iv) if sent by an internationally recognized courier service, three (3) Business Days after deposit with such courier service,

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(v) if sent by e-mail, when there is effective acknowledgment of receipt, or

(vi) if delivered personally, when delivered.

9.2. **Persons and Addresses.** Except as may otherwise be provided, all notices or other communications provided for in this Contribution Agreement or that a Party may otherwise be required to give to the other Party shall be sent as provided in Section 9.1 to the following persons at the addresses stated herein or at such other address as either Party may specify by notice to the other Party given in accordance with this Article 9:

To Company:
VIVR LLP
c/o Taylor Wessing
5 New Street Square
London EC4A 3TW
Attention: Andrew Davis

With a copy to:
Taylor Wessing
5 New Street Square
London EC4A 3TW
Attention: Andrew Davis

To Bayer:
Bayer Aktiengesellschaft
Kaiser-Wilhelm-Allee
51368 Leverkusen
Germany
Attention: Dr. Axel Bouchon and Dr. Jan Heinemann

With a copy to:
Norton Rose Fulbright US LLP
801 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-2623
USA
Attention: Marilyn Mooney

CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel
Switzerland
Attention: Chief Executive Officer and Chief Legal Officer

and

CRISPR Therapeutics Ltd.
85 Tottenham Court Road
London W1T 4TQ
United Kingdom
Attention: Chief Legal Officer

And

Goodwin Procter LLP
53 State Street
Boston, MA 02109
USA
Attention: Mitchell S. Bloom and Robert E. Puopolo

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Solely for purposes of enforcing its rights to receive copies of notices to Bayer under this Section 9.2, CRISPR shall be an express Third Party beneficiary of Section 9.2 of this Contribution Agreement.

9.3. **Miscellaneous.**

(a) No amendment, modification or addition to any provision of this Contribution Agreement shall be valid unless the same shall be in writing and approved by the signature of each Party.

(b) The terms and conditions of this Contribution Agreement shall be interpreted according to the common sense meaning intended by the Parties and in accordance with the principles of good faith and fair dealing.

(c) The Parties have participated jointly in the negotiation and drafting of this Contribution Agreement. In the event an ambiguity or question of intent or interpretation arises, this Contribution Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Contribution Agreement. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise.

(d) Every day commences at 12:00 a.m. and ends at 11:59 p.m. (midnight) New York time. Any reference in this Contribution Agreement to a number of days “in” which an action or notice is to be taken or given, shall be interpreted in such way that the term commences the day after the date taken as reference and that the action or notice shall be validly taken or given at the last day. Any reference in this Contribution Agreement to a “day” or a number of “days” without explicit qualification of “business” shall be interpreted as a reference to a calendar day or number of calendar days. If any action or notice is to be taken or given on or by a particular calendar day, and such calendar day is not a Business Day, then such action or notice shall be deferred until, or may be taken or given on, the next Business Day.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(e) In the event either Party becomes a debtor under Title 11 of the U.S. Code, this Contribution Agreement shall be deemed to be, for purposes of Section 365(n) of Title 11, a license to "Intellectual Property" as defined therein and the other Party and its Affiliates, and each of their successors and assigns as licensees shall have the rights and elections as specified in Section 365(n) of Title 11 of the U.S. Code. Without limiting the foregoing, upon termination of this Contribution Agreement by a trustee or executor of either Party which has rejected this Contribution Agreement pursuant to any non-contractual rights afforded to it by applicable bankruptcy law and/or a U.S. or foreign bankruptcy court or other tribunal of competent jurisdiction, all rights and licenses herein granted to the other Party shall nonetheless continue in full force and effect in accordance with the terms of this Contribution Agreement. The debtor Party shall take such actions to provide similar protections for the non-debtor Party pursuant to similar laws in other jursidictions.

(f) This Contribution Agreement shall constitute the entire agreement and understanding between the Parties and shall supersede and nullify any and all previous agreements, negotiations, commitments, undertakings and declarations heretofore made between the Parties in respect of the subject matter of this Contribution Agreement unless expressly provided for herein or in any schedule attached hereto and any other agreement entered in connection herewith.

(g) Words importing gender include all genders.

(h) The division of this Contribution Agreement into articles, sections and clauses, the inclusion of a table of contents and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Contribution Agreement.

(i) Each provision contained in this Contribution Agreement is distinct and severable. A declaration of invalidity, illegality or unenforceability of any provision or a part thereof by an arbitrator, a court or a tribunal of competent jurisdiction shall not affect the validity or enforceability of any other provision of this Contribution Agreement. To the extent permitted by law, if any provision of this Contribution Agreement, or the application thereof to any Person or any circumstance, is invalid or unenforceable, (i) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (ii) the remainder of this

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Contribution Agreement and the application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application thereof, in any other jurisdiction.

(j) Any mistaken reference to Articles, clauses, Sections, Schedules or paragraphs of this Contribution Agreement shall be amended according to common sense and good faith rules. When a reference is made in this Contribution Agreement to an Article, clause, Section, Schedule or paragraph, such reference will be to an Article, clause, Section, Schedule or paragraph unless otherwise indicated.

(k) No waiver by any Party of any default, misrepresentation or breach of warranty or covenant hereunder, whether intentional or not, shall be deemed to extend to any prior or subsequent default, misrepresentation or breach of warranty or covenant hereunder or affect in any way any rights arising by virtue of any prior or subsequent such occurrence. No single or partial exercise of any right, power or privilege shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege unless explicitly provided for in this Contribution Agreement.

(l) Subject to the terms of and restrictions in this Contribution Agreement, the reference to any Party shall include its successors or permitted transferees that have legally acquired its rights, obligations and/or duties. This Contribution Agreement shall be binding upon and inure solely to the benefit of the Parties and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other Person any legal or equitable right, benefit or remedy of any nature whatsoever, unless otherwise specified therein.

(m) EACH OF THE PARTIES HEREBY WAIVES TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY WITH RESPECT TO ANY ACTION OR LIABILITY DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS CONTRIBUTION AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS CONTRIBUTION AGREEMENT. EACH OF THE PARTIES HEREBY (A) CERTIFIES THAT NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF ANY SUCH ACTION OR LIABILITY,

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SEEK TO ENFORCE THE FOREGOING WAIVER; AND (B) ACKNOWLEDGES THAT IT HAS BEEN INDUCED TO ENTER INTO THIS CONTRIBUTION AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS CONTRIBUTION AGREEMENT, AS APPLICABLE, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 9.3(m).

(n) This Contribution Agreement may be executed and delivered (including by means of electronic transmission, such as by electronic mail in ".pdf" form) in two or more counterparts, and by the different Parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement.

(o) Whenever the words "include," "includes" or "including" are used in this Contribution Agreement, they will be deemed to be followed by the words "without limitation." The words "hereof," "herein" and "hereunder" and words of similar import when used in this Contribution Agreement will refer to this Contribution Agreement as a whole and not to any particular provision of this Contribution Agreement. All terms used herein with initial capital letters have the meanings ascribed to them herein and all terms defined in this Contribution Agreement will have such defined meanings when used in any certificate or other document made or delivered pursuant hereto unless otherwise defined therein. The definitions contained in this Contribution Agreement are applicable to the singular as well as the plural forms of such terms. Any agreement, instrument or statute defined or referred to herein, or in any agreement or instrument that is referred to herein, means such agreement, instrument or statute as from time to time amended, modified or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The use of "or" is not intended to be exclusive unless expressly indicated otherwise. References to sums of money are expressed in lawful currency of the United States (U.S. dollars), unless the Parties otherwise agree in writing to use a different currency.

(p) Both Parties are independent contractors under this Contribution Agreement. Nothing herein contained will be deemed to create an employment, agency, joint venture or partnership relationship between the Parties hereto or any of their agents or employees, or any other legal arrangement that would impose liability upon one Party for the act or failure to act of the other Party, except to the

extent specifically agreed to in a written agreement signed by the Parties. Neither Party will have any express or implied power to enter into any contracts or commitments or to incur any liabilities in the name of, or on behalf of, the other Party, or to bind the other Party in any respect whatsoever.

[SIGNATURE PAGE FOLLOWS]

* - * - * - *

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the Parties have caused this Contribution Agreement to be executed by their representatives thereunto duly authorized as of the Effective Date.

VIVR LLP

By: _____
Name:
Title:

BAYER AG

By: _____
Name:
Title:

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(vi)

Form of Option Agreement

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(b)(vii)

Form of Cross-License Agreement

CROSS LICENSE AGREEMENT

This CROSS LICENSE AGREEMENT (this "**Agreement**") is entered into as of March 16, 2016 (the "**Effective Date**"), by and between, on the one hand, **BAYER AG**, a German stock corporation (*Aktiengesellschaft*) ("**BAYER**"), and, on the other hand, **CRISPR THERAPEUTICS AG**, a corporation organized under the laws of Switzerland ("**CRISPR AG**"), **CRISPR THERAPEUTICS, INC.,** a corporation organized under the laws of the state of Delaware ("**CRISPR Inc.**"**),** **CRISPR THERAPEUTICS LIMITED**, a corporation organized under the laws of England and Wales ("**CRISPR UK**") and **TRACR HEMATOLOGY LTD**, a UK limited company ("**Tracr"** and together with CRISPR AG, CRISPR Inc. and CRISPR UK "**CRISPR**").

RECITALS

WHEREAS, CRISPR possesses certain Know-How with respect to the Crispr/Cas Technology (as defined below);

WHEREAS, Bayer possesses certain Bayer Limited Background Know-How with respect to protein engineering and animal models;

WHEREAS, Bayer wishes to grant to CRISPR AG and Tracr and CRISPR AG and Tracr wish to receive a license under the Bayer Limited Background Know-How; and

WHEREAS, CRISPR wishes to grant to Bayer and Bayer wishes to receive a license under CRISPR Background Know-How.

NOW, THEREFORE, in consideration of the respective covenants, representations, warranties and agreements set forth herein, the Parties hereto agree as follows:

ARTICLE 1.
DEFINITIONS

The following capitalized terms will have the following meanings:

1.1. "Action" means any claim, action, cause of action, chose in action or suit (whether in contract or tort or otherwise), litigation (whether at law or in equity, whether civil or criminal), controversy, assessment, arbitration, examination, audit, investigation, hearing, charge, complaint, demand, notice or proceeding to, from, by or before any Governmental Authority or arbitrator(s).

1.2. "Affiliate" or "Affiliates" means, with respect to any entity, any Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such entity; and for the purposes of this definition, "control" (and the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such entity, directly or indirectly, whether through the ownership of voting securities or by contract or otherwise. Without limiting the generality of the foregoing, a Person shall be deemed to control another Person if any of the following conditions is met: (a) in the case

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

of corporate entities, direct or indirect ownership of at least fifty percent (50%) of the stock or shares having the right to vote for the election of directors, and (b) in the case of non-corporate entities, direct or indirect ownership of at least fifty percent (50%) of the equity interest with the power to direct the management and policies of such non-corporate entities. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and that in such case such lower percentage shall be substituted in the preceding sentence, provided that such foreign investor has the power to direct the management and policies of such entity. For the purposes of this Agreement, (i) no Party or any of its Affiliates shall be considered an Affiliate of any other Party or any of its Affiliates or of the Company or any of its Affiliates, and neither the Company nor any of its Affiliates shall be considered an Affiliate of any Party or any of its Affiliates, simply by virtue of this Agreement or the relationships created hereby or by the Company Organization Documents or any Local Operating Agreement, and (ii) no Person shall be considered an Affiliate of a Party solely as a result of their right to designate a member of such Party's board of directors.

1.3. "Animal Models" means laboratory animals useful for medical research because they exhibit characteristics that can be used for evaluating potential treatments of a human disease or disorder.

1.4. "Approval Application" means, with respect to a Licensed Product in a particular jurisdiction, an application for approval, license, registration or authorization necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, an application for approval for such Licensed Product by the FDA, and with respect to the European Union, an application for approval for such Licensed Product by the European Commission.

1.5. "Assay" means a procedure for qualitatively assessing or quantitatively measuring the presence, amount, functional activity, safety profile or other property of an active ingredient, biologic or other analyte.

1.6. "Bayer Background Know-How" means any and all Know-How Controlled by Bayer, as of the Effective Date or that come into the Control of Bayer during the Technology Term, that might be useful or necessary to Company to Develop, Manufacture or Commercialize Crispr/Cas Technology, Licensed Agents or Products in the Fields.

1.7. "Bayer Background Patents" means any and all Patents that are Controlled by Bayer, as of the Effective Date or that come into the Control of Bayer during the Technology Term, and that are not part of the Joint Patents, and that claim or disclose Bayer Background Know-How.

1.8. "Bayer Background Technology" means all Bayer Background Know-How and Bayer Background Patents.

1.9. "Bayer Field" means any Field under the heading "Bayer Field" on Schedule 3.1 of the Joint Venture Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.10. “Bayer Limited Background Know-How” means all Bayer Background Know-How that pertains to Assays, Animal Models, Delivery Technology or Protein Optimization Technology.

1.11. “Bayer Limited Background Patents” means any Patents Controlled by Bayer claiming or disclosing any Bayer Limited Background Know-How.

1.12. “Business Day” means any day other than a Saturday, a Sunday or a day on which banks in New York City, United States of America or Frankfurt-Main, Germany or Leverkusen, Germany are authorized or obligated by applicable law or executive order to close.

1.13. “Change of Control” means, with respect to Party, any of the following events: (a) any Person is or becomes the “beneficial owner” (as such term is used in Section 13(d) of the Securities Exchange Act of 1934, as amended, and Rule 13d-3 thereunder, except that a Person shall be deemed to have “beneficial ownership” of all shares that any such Person has the right to acquire, whether such right may be exercised immediately or only after the passage of time), directly or indirectly, of a majority of the total voting power represented by all classes of capital stock then outstanding of Party normally entitled to vote in elections of directors; (b) Party consolidates with or merges into another corporation or entity, or any corporation or entity consolidates with or merges into Party, other than (i) a merger or consolidation that would result in the voting securities of Party outstanding immediately prior to such merger or consolidation continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or any parent thereof) a majority of the combined voting power of the voting securities of Party or such surviving entity or any parent thereof outstanding immediately after such merger or consolidation, or (ii) a merger or consolidation effected to implement a recapitalization of Party (or similar transaction) in which no Person becomes the beneficial owner, directly or indirectly, of voting securities of Party representing a majority of the combined voting power of Party’s then outstanding securities; or (c) Party conveys, transfers or leases all or substantially all of its assets to any Person other than a wholly-owned Affiliate of such Party; provided, that a financing transaction, the primary purpose of which is to raise capital for such Party, shall in no event be considered a Change of Control.

1.14. “Clinical Trial” means a study in humans that is designed to generate data in support of an Approval Application.

1.15. “Commercialize” or “Commercialization” means to market, promote, distribute, offer for sale, sell, have sold, import, export or otherwise commercialize a product, to conduct activities, other than, Development and Manufacturing, in preparation for the foregoing activities, including obtaining Price Approval, and to conduct Clinical Trials and post-Marketing Approval studies. When used as a noun, “Commercialization” means any and all activities involved in Commercializing.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.16. “Companion Diagnostic” means any companion diagnostic tool and/or diagnostic assay, the manufacture, use, sale or importation of which is Covered by the Company Crispr/Cas Technology, Company Optimized Cas Technology, CRISPR Background Know-How and CRISPR Platform Technology Know-How, which is used to (i) identify patients who are most likely to benefit from a Licensed Agent or Product, […***…].

1.17. “Company” means the limited liability partnership established by Bayer and CRISPR in the United Kingdom pursuant to the Joint Venture Agreement.

1.18. “Company CRISPR/Cas Know-How” means any Know-How Controlled by the Company that constitutes an addition, amendment or enhancement to the Crispr/Cas Technology that is not Company Optimized Cas Know-How that is
[…***…].

1.19. “Company CRISPR/Cas Patents” means any Patents Controlled by Company claiming or disclosing any Company CRISPR/Cas Know-How.

1.20. “Company CRISPR/Cas Technology” means the Company CRISPR/Cas Know-How and the Company CRISPR/Cas Patents.

1.21. “Company Non-Product Know-How” means any and all Know-How Controlled by the Company during the Technology Term, including Delivery Technology and excluding Company CRISPR/Cas Know-How, Company Product Know-How and Optimized Cas Know-How, that, is […***…].

1.22. “Company Non-Product Patents” means any Patents Controlled by the Company claiming or disclosing any Company Non-Product Know-How.

1.23. “Company Optimized Cas Know-How” means all Know-How related to enhancements, amendments or additions in and to any nuclease element of the Crispr/Cas Technology […***…].

1.24. “Company Optimized Cas Patents” means any Patents claiming or Covering Company Optimized Cas Know-How.

1.25. “Company Optimized Cas Technology” means the Company Optimized Cas Know-How and Company Optimized Cas Patents.

1.26. “Company Product Know-How” means any and all Know-How Controlled by the Company during the Technology Term that relates to the composition or use of a Licensed Agent or Product in the Fields, including guide RNA complementary to a Target in combination with a nuclease element, that is […***…].

1.27. “Company Product Patents” means any Patents Controlled by the Company that claim or disclose any Company Product Know-How.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.28. "Company Program Patents" means (i) Company Product Patents, (ii) Company Non-Product Patents, (iii) Company CRISPR/Cas Patents (iv) Company Optimized Cas Patents and (v) the Company's interest in any and all Joint Patents.

1.29. "Control" means with respect to any Know-How or Patent or other data, information or Materials, possession of the ability by a Party or its Affiliate(s) (whether by sole or joint ownership, license or otherwise, but in all cases not including when such rights are granted or obtained pursuant to the Transaction Documents) to grant, without violating the terms of any agreement with a Third Party, a license, access or other right in, to or under such Know-How or Patent or other data, information or Materials. Notwithstanding anything in the Transaction Documents to the contrary, a Party will be deemed to not Control any Patents or Know-How that are owned or controlled by a Third Party described in the definition of "Change of Control," or such Third Party's Affiliates (other than an Affiliate of such Party prior to the Change of Control), (a) prior to the closing of such Change of Control, except to the extent that any such Patents or Know-How were developed prior to such Change of Control through the use of such Party's technology, or (b) after such Change of Control to the extent that such Patents or Know-How are developed or conceived by such Third Party or its Affiliates (other than such Party) after such Change of Control without using or incorporating such Party's technology. A Party does not need to amend any existing in-license as of the Effective Date so that such Party "Controls" any IP under such given in-license.

1.30. "Cover," "Covering" or "Covers" means, as to a product and Patent, that, in the absence of a license granted under, or ownership of, such Patent, the making, using, keeping, selling, offering for sale or importation of such product would infringe such Patent or, as to a pending claim included in such Patent, the making, using, selling, offering for sale or importation of such product would infringe such Patent if such pending claim were to issue in an issued patent without modification.

1.31. "Covered Target" means a Target as and for so long as such Target remains the subject of a license or similar grant of rights under the Existing Third Party Agreement. For the avoidance of doubt, Covered Targets shall not be deemed Third-Party Targets or Excluded Covered Targets.

1.32. "Crispr/Cas Technology" means clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) protein system that comprises (a) at least one guide RNA element that is complementary to a Target, wherein said guide RNA element can be a guide RNA or a polynucleotide(s) encoding such guide RNA, and (b) a nuclease element, wherein said nuclease element is a Cas nuclease protein.

1.33. "CRISPR Background Know-How" means any and all Know-How other than CRISPR Platform Technology Know-How Controlled by CRISPR, as of the Effective Date or that comes into the Control of CRISPR during the Technology Term, that is useful to or necessary for the Company to Develop, Manufacture or Commercialize Licensed Agents or Products in the Fields.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.34. "CRISPR Background Patents" means any and all Patents other than a Company Program Patent or CRISPR Platform Technology Patent […***…].

1.35. "CRISPR Contributed Technology" means all CRISPR Platform Technology Patents, CRISPR Platform Technology Know-How, CRISPR Background Know-How and CRISPR Background Patents.

1.36. "CRISPR Field" means any Field under the heading "CRISPR Field" on Schedule 3.1 of the Joint Venture Agreement.

1.37. "CRISPR Platform Technology Know-How" means any […***…].

1.38. "CRISPR Platform Technology Patents" means any and all Patents that are Controlled by CRISPR, as of the Effective Date, or that come into the Control of CRISPR during the Technology Term claiming or covering any CRISPR Platform Technology Know-How. The CRISPR Platform Technology Patents is hereby deemed not to include any Company Product Patents.

1.39. "Delivery Technology" means methods, formulations, technologies and systems, including vectors, for transporting a Licensed Agent or Product into or within the human body or into human cells outside of the body.

1.40. "Develop" or "Development" means, with respect to a product, all clinical and non-clinical research and development activities conducted for such product, including toxicology, pharmacology test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, Clinical Trials (other than post-Marketing Approval Clinical Trials), regulatory affairs, pharmacovigilance, Clinical Trial regulatory activities and obtaining and maintaining Regulatory Approval. When used as a verb, "Develop" or "Developing" means to engage in Development.

1.41. "EMA" means the European Medicines Agency and any successor entity thereto.

1.42. "European Commission" means the European Commission or any successor entity that is responsible for granting Marketing Approvals authorizing the sale of pharmaceuticals in the European Union.

1.43. "European Union" or "EU" means each and every country or territory that is officially part of the European Union.

1.44. "Existing Third Party Agreement" means that certain Strategic Collaboration, Option and License Agreement entered into by and between CRISPR (and certain of its Affiliates) and Vertex Pharmaceuticals, Incorporated (and certain of its Affiliates) dated as of October 26, 2015.

1.45. "FDA" means the United States Food and Drug Administration and any successor agency thereto.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.46. “Fields” means the CRISPR Fields and the Bayer Fields, provided fields shall not include diagnosis, prevention or treatment of cystic fibrosis.

1.47. “GAAP” means United States generally accepted accounting principles, consistently applied, as in effect from time to time.

1.48. “Governmental Authority” means any court, agency, authority, department, regulatory body or other instrumentality of any government or country or of any national, federal, state, provincial, regional, county, city or other political subdivision of any such government or any supranational organization of which any such country is a member.

1.49. “Human Therapeutic Use” means the use of the Crispr/Cas Technology for use in the discovery, research and development of products for the treatment or prevention of any human disease, disorder or condition, including researching, developing, making, using or selling Licensed Agents or Products and Companion Diagnostics.

1.50. “IFRS” means International Accounting Standards/International Financial Reporting Standards of the International Accounting Standards Board as amended from time to time.

1.51. “In-License Agreement” means the agreements with Third Party licensors under which the CRISPR Contributed Technology or Bayer Background Technology is being licensed by CRISPR or Bayer, respectively.

1.52. “Intellectual Property” means (i) patents (including utility, design, plant, utility model, reissues, re-examination, and patents of addition), patent applications (filed, unfiled or being prepared), records of invention, (ii) trademarks (registered or unregistered), trademark applications, trade names, copyrights (registered or unregistered), copyright applications, mask works, service marks (registered or unregistered), service mark applications, database rights (registered or unregistered), all together with the goodwill associated with such marks or names, (iii) trade secrets, technology, inventions, know-how, processes and confidential and proprietary information, including any being developed (including but not limited to designs, manufacturing data, design data, test data, operational data, and formulae), whether or not recorded in tangible form through drawings, software, reports, manuals or other tangible expressions, whether or not subject to statutory registration, anywhere, and all rights to any of the foregoing.

1.53. “Joint Know-How” means Know-How discovered, developed, invented or created jointly by (a) the Company or a Local Operating Entity and (b) either or both of: (i) CRISPR, its Affiliates or Third Parties acting on CRISPR’s behalf (but excluding when any such entities are acting for or on behalf of the Company or a Local Operating Entity, including without limitation, CRISPR acting in performance of services for the Company or a Local Operating Entity), or (ii) Bayer, its Affiliates or Third Parties, acting on Bayer’s behalf (but excluding when any such entities are acting for or on behalf of the Company or a Local Operating Entity, including without limitation, Bayer acting in performance of services for the Company).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.54. “Joint Patents” means any Patents claiming or Covering any Joint Know-How.

1.55. “Joint Venture Agreement” means that certain Joint Venture Agreement between the Parties entered into on December 19, 2015.

1.56. “Know-How” means Intellectual Property, data, results, pre-clinical and clinical protocols and data from studies and Clinical Trials, chemical structures, chemical sequences, information, inventions, know-how, formulas, trade secrets, techniques, methods, processes, procedures and developments, whether or not patentable; provided that Know-How does not include Patents claiming any of the foregoing.

1.57. “Law” or “Laws” means all applicable laws, statutes, rules, regulations and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, agency or other body, domestic or foreign, including any applicable rules, regulations, guidelines, or other requirements of the Regulatory Authorities that may be in effect from time to time.

1.58. “Licensed Agent” means a product comprising (a) all components of a Crispr/Cas Technology, for Targeting a Target, where such Crispr/Cas Technology, or any portion thereof is discovered by or on behalf of the Company or a Local Operating Entity (solely or jointly with such entities), or is in the Company’s or a Local Operating Entity’s Control, prior to the Effective Date, or during the Technology Term or (b) modified human cells or tissue, or another cell- or tissue-based product, or any other therapeutic product comprising or produced using the Crispr/Cas Technology, in each case produced using the components referred to in clause (a).

1.59. “Licensed Product” means any Product that (i) has been licensed by a Party following opt-in or (ii) licensed to a Third Party. All Products comprising the same Licensed Agent(s) (and no additional Licensed Agents) will be considered the same Licensed Product under this Agreement.

1.60. “Local Operating Agreement” means, as applicable, any agreement governing the formation and operation of any Local Operating Entity formed pursuant to Section 3.3 of the Joint Venture Agreement.

1.61. “Local Operating Entity” means any local operating entity formed by the Company pursuant to Section 3.3 of the Joint Venture Agreement.

1.62. “Manufacture” or “Manufacturing” means activities directed to making, having made, producing, manufacturing, processing, filling, finishing, packaging, labeling, quality control testing and quality assurance release, shipping or storage of a product.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.63. “Marketing Approval” means, with respect to a Licensed Product in a particular jurisdiction, all approvals, licenses, registrations or authorizations necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, approval of an Approval Application for such Licensed Product by the FDA and with respect to the European Union, approval of an Approval Application for such Licensed Product by the European Commission.

1.64. “Materials” means all biological materials or chemical compounds arising out of a Party’s activities under this Agreement or otherwise provided by a Party for use by the other Party to conduct activities pursuant to this Agreement, including Licensed Agents, Clinical Trial samples, cell lines, assays, viruses and vectors.

1.65. “Non-Human Therapeutic Uses” means uses (a) other than Human Therapeutic Uses, and (b) for the discovery and research and preclinical development of products for the diagnosis, treatment or prevention of any human disease, disorder or condition, but excluding research, developing, making, using or selling Licensed Agents or Products or Companion Diagnostics.

1.66. “Party” or “Parties” means, when used in singular, any signatory to the applicable agreement, as the context may require, and when used in plural, all signatories to the applicable agreement, and any permitted successor or assign thereto.

1.67. “Patents” means the rights and interests in and to issued patents and pending patent applications and similar government-issued rights (e.g., utility models) protecting inventions in any country, jurisdiction or region (including inventor’s certificates and utility models), including all priority applications, international applications, provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing.

1.68. “Person” means any individual, partnership, limited partnership, limited liability company, joint venture, syndicate, sole proprietorship, company or corporation with or without share capital, unincorporated association, trust, trustee, executor, administrator or other legal personal representative or governmental body.

1.69. “Price Approval” means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

1.70. “Product” means any pharmaceutical product, medical therapy, preparation, substance, or formulation comprising or employing, in whole or in part, a Licensed Agent.

1.71. “Protein Optimization Technology” means the modification of a Cas protein by amino acid substitution, deletion insertion or other molecular biological or biochemical methods to improve its characteristics, including but not limited to activity, stability, deliverability, immunogenicity and specificity.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.72. “Regulatory Approval” means the technical, medical and scientific licenses, registrations, authorizations and approvals (including approvals of Approval Applications, supplements and amendments, pre- and post- approvals, and labeling approvals) of any Regulatory Authority, necessary for the research, Development, clinical testing, commercial manufacture, distribution, marketing, promotion, offer for sale, use, import, export or sale of a pharmaceutical product in a regulatory jurisdiction, including Marketing Approval.

1.73. “Regulatory Authority” means, with respect to a country in the Territory, any national (e.g., the FDA), supra-national (e.g., the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Price Approvals for pharmaceutical products in such country or countries.

1.74. “Sublicensee” means an Affiliate or Third Party, other than a distributor, to whom a licensee (or an Affiliate) sublicenses any of the rights granted to the licensee during the term of the applicable agreement.

1.75. “Target” means a polynucleotide sequence the activity, inactivity, function or expression of which is associated with a human disease that is within the Fields and which is to be edited, engineered or modulated in order to treat, ameliorate or prevent such disease. The Targets as of the Effective Date are listed on Schedule A of the Joint Venture Agreement with an indication of which human disease each is associated with, as well as the gene or sequence identification (Seq. ID) specified in Gene Bank. Additional Targets may be included after the Effective Date solely by updating Schedule A in accordance with Section 7.13 of the Joint Venture Agreement.

1.76. “Targeting” means editing, engineering or modulating (including by means of gene knock-out, gene tagging, gene disruption, gene mutation, gene insertion, gene deletion, gene activation, gene silencing or gene knock-in) a Target or an Excluded Target or a Covered Target by means of hybridizing a guide RNA of the Crispr/Cas Technology to such Target or Excluded Target or Covered Target.

1.77. “Technology Term” means from the Effective Date until the Company is no longer Developing Licensed Agents or Products.

1.78. “Territory” means all the countries of the world.

1.79. “Third Party” means any Person other than Bayer or CRISPR or any Affiliate of either Party.

1.80. “Third Party Obligations” means any financial or non-financial encumbrances, obligations, restrictions, or limitations imposed by an In-License Agreement, including field or territory restrictions, covenants, diligence obligations or limitations pertaining to enforcement of intellectual property rights.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.81. "Third-Party Target" means a Target that is the subject of a license or similar grant of rights pursuant to an agreement between CRISPR or one of its Affiliates and a Third-Party; provided, that such Target was licensed in accordance with the procedures set forth in Section 3.7 of the Joint Venture Agreement. For the avoidance of doubt, Third-Party Targets include all Excluded Targets.

1.82. "United States" or "U.S." means the fifty states of the United States of America and all of its territories and possessions and the District of Columbia.

1.83. The following terms shall have the meanings defined in the Section or Schedule indicated. Unless otherwise noted, the indicated Section or Schedule refers to the appropriate Section or Schedule of this Agreement.

Term	Where defined
Affected Party	Section 5.1
Agreement	First paragraph
Bayer	First paragraph
Company Organization Documents	Section 3.2(b)(i) of the Joint Venture Agreement
Compelled Party	Section 5.1
CRISPR	First paragraph
CRISPR AG	First paragraph
CRISPR Inc.	First paragraph
CRISPR UK	First paragraph
Effective Date	First paragraph
Excluded Covered Targets	Section 3.6(i) of the Joint Venture Agreement
Excluded Target	Section 3.7 of the Joint Venture Agreement
Information	Section 5.1
Opt-In Transaction	Option Agreement
Option Agreement	Section 3.2(b)(vi) of the Joint Venture Agreement
Permitted COC Transfer	Section 11.3 of the Joint Venture Agreement
Requesting Party	Section 5.4
Reviewing Party	Section 5.4
Tracr	First paragraph
Transaction Documents	Section 3.2(b) of the Joint Venture Agreement

ARTICLE 2.
LICENSE GRANTS

2.1. **License Grant to Bayer.** CRISPR hereby grants to Bayer a worldwide, royalty-free, fully paid-up, sublicenseable (solely as permitted by Section 2.3), non-exclusive license under CRISPR's and its Affiliates' interest in and to the CRISPR Background Know-How and the CRISPR Platform Technology Know-How, in both cases, made available to the Company or used by CRISPR for the benefit of the Company to Develop, Manufacture, have Manufactured, use, keep, sell, offer for sale, import, have imported, export and Commercialize products for Non-Human Therapeutic Uses.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.2. **License Grant to CRISPR.** Bayer hereby grants to CRISPR AG and Tracr a worldwide, royalty-free, fully paid-up, sublicenseable (solely as permitted by Section 2.3), non-exclusive license under Bayer's and its Affiliates' interest in and to the Bayer Limited Background Know-How and Bayer Limited Background Patents, in both cases, made available to the Company or used by Bayer for the benefit of the Company to Develop, Manufacture, have Manufactured, use, keep, sell, offer for sale, import, have imported, export and Commercialize products that comprise or employ the Crispr/Cas Technology for Human Therapeutic Uses.

2.3. **Sublicenses**. Provided a Party is licensing technology it Controls (other than the technology licensed to it under a Transaction Document) to a given Third Party, subject to the terms of this Agreement, each Party may grant sublicenses through multiple tiers of sublicenses to such Third Party in the same transaction of any and all rights granted to such Party under Section 2.1 or 2.2, as applicable. Each such sublicense will be subject and subordinate to, and consistent with, the terms and conditions of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement. Notwithstanding the grant of any sublicense, each Party shall remain primarily liable to the other Party for its compliance with all provisions of this Agreement. Notwithstanding anything to the contrary in this Agreement, CRISPR AG and Tracr shall not sublicense or use any Animal Models that are within the Bayer Limited Background Know-How in connection with any Development of any products related to the Covered Targets or Excluded Targets.

2.4. **Third Party Obligations.** The licenses granted under this Agreement shall be subject to and limited by any applicable Third Party Obligations.

2.5. **Financial Obligations for technology licensed from Third Parties**. To the extent that there are financial obligations associated with any technology licensed from Third Parties, the Party using such technology shall be responsible for such financial obligations; provided that, the Party contributing such technology shall provide prior notice of such financial obligations and shall be responsible for any financial obligations if prior notice is not provided.

2.6. **No Implied Licenses**. All rights in and to CRISPR's Intellectual Property, or to Bayer's Intellectual Property not expressly licensed to the other Party under this Agreement are hereby retained by CRISPR and/or its Affiliates or Bayer and/or its Affiliates, respectively. Except as expressly provided in this Agreement, no Party will be deemed by estoppel or implication to have granted the other Party any licenses or other right with respect to any intellectual property.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 3.
INTELLECTUAL PROPERTY MATTERS

3.1. **Intellectual Property Matters.** As between the Parties, except as expressly set forth herein, Bayer retains all right, title and interest in and to the Bayer Background Know-How and Bayer Background Patents, and the sole right (but not the obligation) to prepare, prosecute, maintain and enforce such intellectual property. As between the Parties, except as expressly set forth herein, CRISPR retains all right, title and interest in and to the CRISPR Background Know-How and CRISPR Platform Technology Know-How and the sole right (but not the obligation) to enforce such intellectual property.

3.2. **Bayer Limited Background Technology that is Licensed from a Third Party**. During the Technology Term, if CRISPR AG or Tracr wish to use any Bayer Limited Background Know-How and/or Bayer Limited Background Patents that are licensed from a Third Party but which license does not permit the grant of a further license or similar access rights to CRISPR AG and Tracr as provided in Section 2.2, Bayer shall effect an introduction to such Third Party and provide such other reasonable assistance as CRISPR AG or Tracr may request, to allow CRISPR AG and Tracr to conclude a license or other agreement with such Third Party. For clarity Bayer will be under no obligation to amend any existing Agreement, including making any change to financial provisions.

3.3. **No Other Rights.** Except as otherwise expressly provided in this Agreement, under no circumstances will a Party or any of its Affiliates, as a result of this Agreement, obtain any ownership interest, license or other right in or to any of the other Party's Intellectual Property, including tangible or intangible items owned, controlled or developed by the other Party, or provided by the other Party to the receiving Party at any time, pursuant to this Agreement. Neither Party nor any of its Affiliates will use or practice any of the other Party's Intellectual Property or Materials licensed or provided to such Party or any of its Affiliates outside the scope of or otherwise not in compliance with the rights and licenses granted to such Party and its Affiliates under this Agreement, except to the extent an unlicensed Third Party could use such Intellectual Property or Materials.

ARTICLE 4.
TERM; TERMINATION

4.1. **Agreement Term; Expiration**. This Agreement is effective as of the Effective Date and shall continue until terminated pursuant to the other provisions of this Article 4.

4.2. **Termination of the Agreement**.

4.2.1. **Termination for Material Breach**.

(a) **Unauthorized Use of Bayer Background Know-How and Bayer Background Patents.** CRISPR AG and Tracr shall institute reasonable procedures to prevent Bayer Background Know-How and Bayer Background Patents from being used for anything except Human Therapeutic Use. After receiving notice from Bayer alleging a specific breach, CRISPR AG or Tracr,

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

as applicable, will investigate (with Bayer having the right to participate in such investigation) such use of Bayer Background Know-How and Bayer Background Patents, and if CRISPR AG or Tracr identifies any such unauthorized use of Bayer Background Know-How and Bayer Background Patents, CRISPR or Tracr shall immediately cease such use and implement reasonable procedures to prevent such unauthorized use of Bayer Background Know-How and Bayer Background Patents in the future. If, after a reasonable period of time, CRISPR or Tracr has not taken such steps to Bayer's reasonable satisfaction then Bayer may deliver notice of a material breach to CRISPR. CRISPR or Tracr will have […***…] from the receipt of such notice to cure such breach. If CRISPR or Tracr fail to cure such breach within such […***…] period, subject to Section 4.2.2, Bayer may terminate this Agreement by providing written notice to CRISPR.

(b) **Unauthorized Use of CRISPR Background Know-How.** Bayer shall institute reasonable procedures to prevent CRISPR Background Know-How from being used for Human Therapeutic Use. After receiving notice from CRISPR alleging a specific breach, Bayer will investigate (with CRISPR having the right to participate in such investigation) such use of CRISPR Background Know–How, and if Bayer identifies any such unauthorized use of CRISPR Background Know-How, Bayer shall immediately cease such use and implement reasonable procedures to prevent such unauthorized use of CRISPR Background Know-How in the future. If, after a reasonable period of time, Bayer does not take such steps to CRISPR's reasonable satisfaction then CRISPR may deliver notice of a material breach to Bayer. Bayer will have […***…] from the receipt of such notice to cure such breach. If Bayer fails to cure such breach within such […***…] period, subject to Section 4.2.2, CRISPR may terminate this Agreement by providing written notice to Bayer.

4.2.2. **Disputes Regarding Material Breach**. Notwithstanding the foregoing, if the breaching Party in Section 4.2 disputes the materiality, or failure to cure of any such breach, and provides notice to the non-breaching Party of such dispute within such […***…] period, the non-breaching Party will not have the right to terminate this Agreement in accordance with Section 4.2, unless and until it has been determined in accordance with Section 20.3 of the Joint Venture Agreement that this Agreement was materially breached by the breaching Party and the breaching Party fails to cure such breach within […***…] (or during a longer period of time if such breach is not reasonably curable within such […***…] period, so long as the non-breaching Party is pursuing a cure in good faith) following such determination. It is understood and acknowledged that during the pendency of such dispute, all the terms and conditions of this Agreement will remain in effect and the Parties will continue to perform all of their respective obligations hereunder, including satisfying any payment obligations.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.2.3. **Termination for Insolvency**. If Bayer or CRISPR makes an assignment for the benefit of creditors (other than in the ordinary course of business), appoints or suffers appointment of a receiver or trustee over all or substantially all of its property, files a petition under any bankruptcy or insolvency act or has any such petition filed against it that is not discharged within […***…] of the filing thereof, then the other Party may terminate this Agreement in its entirety effective immediately upon written notice to the non-terminating Party.

4.3. **Consequences of Expiration or Termination of the Agreement**. Upon termination of this Agreement, the license granted to the terminating Party herein shall survive termination and the license granted to the non-terminating Party herein shall terminate.

ARTICLE 5.
CONFIDENTIALITY

5.1. **Confidentiality.** Each Party shall, and shall cause its Affiliates to, keep confidential any oral or written, tangible or intangible, proprietary or confidential information ("Information") of the other Party or its Affiliates, furnished to it by the other Party, its Affiliates or their directors, officers, employees, representatives or agents, or obtained by it in connection with the transactions contemplated by this Agreement or any other Transaction Document. The term "Information" shall be deemed to include those portions of any notes, analyses, compilations, studies, interpretations, memoranda or other documents (regardless of the form thereof) prepared by the receiving Party or its Affiliates or its or their directors, officers, employees, representatives or agents which contain, reflect or are based upon, in whole or in part, any Information of the disclosing Party or its Affiliates. In addition, such Party and its Affiliates shall not use such Information except in connection with the transactions or the performance of the obligations of such Party or such Affiliate contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder or as expressly provided for herein or therein. Neither Party or its Affiliates will disclose the Information of the other Party or its Affiliates, or its directors, officers, employees, representatives or agents unless such Person has a reasonable need to know such Information in connection with the transactions or the performance of the obligations of such Party or such Affiliates contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder or as expressly provided for herein or therein. Neither Party or its Affiliates shall release or disclose such Information to any other Person, except those among its auditors, attorneys, financial advisors, bankers and consultants having a need to know such Information in connection with the transactions or the performance of the obligations of such Party or such Affiliate contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder, as required to comply with applicable Law or reporting requirements, or as expressly provided for herein or therein, or to actual or potential acquirers, collaborators, licensees, Sub-licensees, investment bankers, investors or lenders. Each Person receiving any such Information shall be subject to customary

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

confidentiality obligations prior to such Person's receipt of such Information and such Party shall be primarily liable and responsible for any breach of this Section 5.1 as if such Person was a party hereto. In addition, each Party and its Affiliates are permitted to disclose such Information to the extent such disclosure is to a Governmental Authority as reasonably necessary in filing or prosecuting Patent, copyright and trademark applications, prosecuting or defending litigation related to this Agreement or any other Transaction Document, complying with applicable governmental regulations with respect to performance under this Agreement or any other Transaction Document or otherwise required by applicable Law. If a Party or any of its Affiliates (the "Compelled Party") is requested to disclose any Information by any governmental or regulatory authority (including stock exchange rules, GAAP or IFRS), the Compelled Party will promptly notify the other Party (the "Affected Party"), to permit it to seek a protective order or take other action that the Affected Party in its discretion deems appropriate, and the Compelled Party will cooperate in any such efforts to obtain a protective order or other reasonable assurance that confidential treatment will be accorded such Information. If, in the absence of a protective order, the Compelled Party is compelled as a matter of Law to disclose any such Information in any proceeding or pursuant to legal process (as advised by its outside legal counsel), the Compelled Party may disclose to the Person compelling disclosure only the part of such Information as is required by Law to be disclosed (in which case, prior to such disclosure, the Compelled Party will advise and consult with the Affected Party and its counsel as to such disclosure and the nature and wording of such disclosure) and the Compelled Party will use its reasonable best efforts to obtain confidential treatment therefor. The confidentiality obligations contained in this Section 5.1 do not apply to Information that can be shown by such Party to have been (i) previously known by the Party or its Affiliates to which it was furnished prior to the date hereof (and not under a confidentiality obligation), (ii) generally available to the public through no fault or breach of such Party or its Affiliates, (iii) later lawfully acquired from other sources (not under a confidentiality obligation) by the Party or its Affiliates to which it was furnished or (iv) independently developed by a Party or its Affiliates or its or their directors, officers, employees, representatives or agents without the use or reference to any Information of the other Party or its Affiliates. Following a termination of this Agreement, such confidentiality obligations and use restrictions shall be maintained, subject to the exceptions set forth above, and all Information of the other Party and its Affiliates (including all copies thereof) shall be returned (or, at the other Party's instructions, destroyed, with certification of the same) to the Party that the other Party and its Affiliates shall be permitted to retain such Information (i) to the extent necessary for purposes of performing any continuing obligations or exercising any ongoing rights hereunder or under a Transaction Document and, in any event, one copy of such Information retained by the other Party's legal department for its records (provided that for so long as such Information is so retained, such Information shall be subject to the confidentiality obligations and restrictions on use as set forth herein), and (ii) any computer records or files containing such Information that have been created solely by such Party's or its Affiliates' automatic archiving and back-up procedures, to the extent created and retained in a manner consistent with such Party's standard archiving and back-up procedures, but not for any other use or purposes.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.2. **Duration of Confidentiality.** The provisions of Section 5.1 shall continue to apply with respect to each Party and its Affiliates until the date which is […***…] following the termination of this Agreement.

5.3. **Press Releases and Other Public Disclosures.** Neither Party shall issue any press release or otherwise make any public statement with respect to this Agreement or the other Transaction Documents without the prior written consent of the other Party, except in case of public announcements required under the rules of any stock exchange on which the equity interests of a Party or its Affiliates (or any successor entity) are listed or any applicable Law or governmental requirement. Notwithstanding anything to the contrary in this Article 5, a Party (or its Affiliates) may disclose this Agreement and the other Transaction Documents (and a summary thereof) in securities filings with the U.S. Securities and Exchange Commission or an equivalent foreign agency to the extent required by applicable Law. In such event, the Party seeking such disclosure shall prepare such summary and a proposed redacted version of this Agreement and/or the other Transaction Documents to request confidential treatment for such agreements, and the other Party may promptly (and in any event, no less than […***…] after receipt of such summary and proposed redactions) provide its comments. The Party seeking such disclosure shall reasonably consider any comments thereto provided by the other Party within such […***…] period. The Parties have agreed to issue a joint press release or separate press releases announcing this Agreement and the transactions contemplated hereby, to be issued by the Parties at a mutually agreed date and time, in the form(s) to be agreed by the Parties in their reasonable discretion.

5.4. **Publications.** During the Term, each Party (as the "Requesting Party") will submit to the other Party (as the "Reviewing Party") for review and approval any proposed academic, scientific and medical publication or public presentation to the extent it includes Information of the Reviewing Party. In each such instance, such review and approval will be conducted for the purposes of preserving the value of the CRISPR Contributed Technology (for CRISPR) or the Bayer Background Technology (for Bayer) and determining whether any portion of the proposed publication or presentation containing the Reviewing Party's Information should be modified or deleted. Written copies of such proposed publication or presentation required to be submitted hereunder will be submitted to the Reviewing Party no later than […***…] before submission for publication or presentation (or five Business Days in advance in the case of an abstract). The Reviewing Party will provide its comments with respect to such publications and presentations within […***…] of its receipt of such written copy (or five Business Days in the case of an abstract). The review period may be extended for an additional […***…] if the Reviewing Party reasonably requests such extension including for the preparation and filing of patent applications. Notwithstanding anything to the contrary, the Reviewing Party may require, in its reasonable discretion, that the Requesting Party redact the Reviewing Party's Information from any such proposed publication or

presentation. The Parties will each comply with standard academic practice regarding authorship of scientific publications and recognition of contribution of other parties in any publication. Notwithstanding the foregoing, a Party's obligation to submit any publication to the Reviewing Party for review and approval under this Section 5.4 will not apply to any publication made by a Party with respect to Licensed Products for which such Party has completed an Opt-In Transaction that does not contain Information or disclose any non-public information of the Reviewing Party (other than, for the avoidance of doubt, Information relating to the Licensed Products for which such Opt-In Transaction relates); provided, that where reasonably possible, such Party will provide the Reviewing Party with an advance copy of such publication if such publication is reasonably likely to have a material adverse effect on the value of CRISPR Contributed Technology or Bayer Background Technology. For clarity, neither Bayer nor CRISPR are obligated hereunder to submit proposed publications to the other Parties for all proposed publications relating to work conducted outside of the scope of this Agreement and the other Transaction Documents.

5.5. **Attorney-Client Privilege**. Neither Party is waiving, nor will be deemed to have waived or diminished, any of its attorney work product protections, attorney client privileges or similar protections and privileges as a result of disclosing information pursuant to this Agreement, or any of its Information (including Information related to pending or threatened litigation) to the receiving Party, regardless of whether the disclosing Party has asserted, or is or may be entitled to assert, such privileges and protections. The Parties: (a) share a common legal and commercial interest in such disclosure that is subject to such privileges and protections; (b) are or may become joint defendants in proceedings to which the information covered by such protections and privileges relates; (c) intend that such privileges and protections remain intact should either Party become subject to any actual or threatened proceeding to which the disclosing Party's Information covered by such protections and privileges relates; and (d) intend that after the Effective Date both the receiving Party and the disclosing Party will have the right to assert such protections and privileges.

ARTICLE 6.
DISPUTE RESOLUTION

6.1. **Referral to Heads of Businesses.** Unless otherwise specified in this Agreement, the Parties hereby agree that to the extent reasonably practicable and would not materially prejudice a Party, controversies or claims arising out of or relating to this Agreement or the interpretation, performance, breach, termination or validity thereof shall first be referred to the head of Bayer AG's Head of R&D and CRISPR's Chief Executive Officer for resolution. If these individuals are unable to agree upon a resolution within thirty (30) days after referral of the matter to them, then either Party may pursue any available remedy hereunder, at law or in equity.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

6.2. **Attorneys' Fees.** If any action at law or in equity (including, arbitration) is necessary to enforce or interpret the terms of this Agreement, including claims for fraud and/or fraudulent inducement, the prevailing Party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other relief to which such Party may be entitled.

6.3. **Jurisdiction.** Unless otherwise specified in this Agreement, each Party to this Agreement, by its execution hereof, unless otherwise prohibited by applicable Law (i) hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any action among the Parties, (ii) hereby waives and agrees not to assert, by way of motion, as a defense or otherwise, in any such action, any claim that it is not subject personally to the jurisdiction of the above-named courts, that any such action brought in one of the above-named courts should be dismissed on grounds of forum non conveniens, should be transferred or removed to any court other than one of the above-named courts, or should be stayed by reason of the pendency of some other proceeding in any court other than one of the above-named courts, or that this Agreement or the subject matter hereof may not be enforced in or by such court and (iii) to the extent that an action can be commenced in a court, agrees not to commence any such action in any court other than before one of the above-named courts. Notwithstanding the previous sentence, a Party hereto may commence any action in a court other than the above-named courts for the purpose of enforcing an order or judgment issued by one of the above-named courts.

6.4. **Venue.** No Party hereto will assert that venue should properly lie in any other location within the selected jurisdiction.

6.5. **Specific Performance.** Each of the Parties hereto acknowledges and agrees that the other Party would be damaged irreparably in the event any of the provisions of this Agreement are not performed in accordance with their specific terms or otherwise are breached or violated. Accordingly, each of the Parties hereto agrees that, without posting a bond or other undertaking, the other Party may seek (and obtain) an injunction or injunctions to prevent breaches or violations of the provisions of this Agreement and to enforce specifically this Agreement and the terms and provisions hereof in any Action instituted in any court specified herein. An Action for specific performance as provided herein shall not preclude a Party hereto from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Agreement. Each Party hereto further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate provided, however, each Party hereto also agrees that any Party hereto can assert any other defense it may have other than the defense of adequate remedy at law.

6.6. **Governing Law.** The Parties agree that this Agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 7.
ASSIGNMENT

7.1. **Assignment.** Except as permitted under the Joint Venture Agreement (including a Permitted COC Transfer complying with Article 11 of the Joint Venture Agreement) or this Agreement, (a) any of the rights, interests and obligations created herein shall not be transferred or assigned to any Third Party and such rights and interests shall not inure to the benefit of any other Person, including any trustee in bankruptcy, receiver or other successor of either of the Parties, whether by operation of Law, sub-license, transfer of the assets, merger, liquidation or otherwise, without the prior written consent of the other Party, and (b) any purported or actual transfer or assignment of any such rights, interests or obligations without the prior written consent of the other Party is and shall be null and void ab initio; provided, however, that either of the Parties may, without consent of the other Party, assign its respective rights and obligations under this Agreement to a successor company of such Party as the result of an internal corporate reorganization to a wholly-owned Affiliate of such Party; provided that the assigning Party shall remain primarily liable hereunder. In addition to the requirements of the prior sentence, if this Agreement is assigned to a Third Party by a Party, as a condition to such assignment, all other Transaction Documents to which such Party is a party shall concurrently be assigned to such Third Party and all Interests of such Party and its Affiliates are to be transferred to such Third Party.

ARTICLE 8.
NOTICES AND MISCELLANEOUS

8.1. **Form of Valid Notice**.

(a) All notices or other communications provided for in this Agreement or that may otherwise be required must be in writing, clearly legible and shall be sent:

(i) by an internationally recognized courier service with acknowledgment of receipt, properly addressed, and postage pre-paid;

(ii) by e-mail; or

(iii) by personal delivery.

(b) Any notice sent by one of the means described in Section 8.1(a) will be deemed received:

(i) if sent by an internationally recognized courier service, three (3) Business Days after deposit with such courier service,

(ii) if sent by e-mail, when there is effective acknowledgment of receipt, or

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(iii) if delivered personally, when delivered.

8.2. **Persons and Addresses**. Except as may otherwise be provided, all notices or other communications provided for in this Agreement or that a Party may otherwise be required to give to the other Party shall be sent as provided in Section 8.1 to the following persons at the addresses stated herein or at such other address as either Party may specify by notice to the other Party given in accordance with this Article 8:

To CRISPR:

CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel
Switzerland
Attention: Chief Executive Officer and Chief Legal Officer

and

CRISPR Therapeutics Ltd.
85 Tottenham Court Road
London W1T 4TQ
United Kingdom
Attention: Chief Legal Officer

With a copy to:

Goodwin Procter LLP
53 State Street
Boston, MA 02109
USA
Attention: Mitchell S. Bloom and Robert E. Puopolo

To Bayer:

Bayer Aktiengesellschaft
Kaiser-Wilhelm-Allee
51368 Leverkusen
Germany
Attention: Dr. Axel Bouchon and Dr. Jan Heinemann

With a copy to:

Norton Rose Fulbright US LLP
801 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-2623
USA
Attention: Marilyn Mooney

8.3. **Miscellaneous.**

(a) No amendment, modification or addition to any provision of this Agreement shall be valid unless the same shall be in writing and approved by the signature of each Party.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) The terms and conditions of this Agreement shall be interpreted according to the common sense meaning intended by the Parties and in accordance with the principles of good faith and fair dealing.

(c) The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Agreement. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise.

(d) Every day commences at 12:00 a.m. and ends at 11:59 p.m. (midnight) New York time. Any reference in this Agreement to a number of days "in" which an action or notice is to be taken or given, shall be interpreted in such way that the term commences the day after the date taken as reference and that the action or notice shall be validly taken or given at the last day. Any reference in this Agreement to a "day" or a number of "days" without explicit qualification of "business" shall be interpreted as a reference to a calendar day or number of calendar days. If any action or notice is to be taken or given on or by a particular calendar day, and such calendar day is not a Business Day, then such action or notice shall be deferred until, or may be taken or given on, the next Business Day.

(e) This Agreement shall constitute the entire agreement and understanding between the Parties and shall supersede and nullify any and all previous agreements, negotiations, commitments, undertakings and declarations heretofore made between the Parties in respect of the subject matter of this Agreement unless expressly provided for herein or in any schedule attached hereto and any other agreement entered in connection herewith.

(f) Words importing gender include all genders.

(g) The division of this Agreement into articles, sections and clauses, the inclusion of a table of contents and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(h) Each provision contained in this Agreement is distinct and severable. A declaration of invalidity, illegality or unenforceability of any provision or a part thereof by an arbitrator, a court or a tribunal of competent jurisdiction shall not affect the validity or enforceability of any other provision of this Agreement. To the extent permitted by law, if any provision of this Agreement, or the application thereof to any Person or any circumstance, is invalid or unenforceable, (i) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (ii) the remainder of this Agreement and the application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application thereof, in any other jurisdiction.

(i) Applicability of Section 365(n) of the U.S. Bankruptcy Code. In the event either Party becomes a debtor under Title 11 of the U.S. Bankruptcy Code, this Agreement shall be deemed to be, for purposes of Section 365(n) of Title 11, a license to "Intellectual Property" as defined therein and the other Party and its Affiliates, and each of their successors and assigns as licensees shall have the rights and elections as specified in Section 365(n) of Title 11 of the U.S. Bankruptcy Code. Without limiting the foregoing, upon termination of this Agreement by a trustee or executor of either Party which has rejected this Agreement pursuant to any non-contractual rights afforded to it by applicable bankruptcy law and/or a U.S. or foreign bankruptcy court or other tribunal of competent jurisdiction, all rights and licenses herein granted to the other Party shall nonetheless continue in full force and effect in accordance with the terms of this Agreement.

(j) Any mistaken reference to Articles, clauses, Sections, Schedules or paragraphs of this Agreement shall be amended according to common sense and good faith rules. When a reference is made in this Agreement to an Article, clause, Section, Schedule or paragraph, such reference will be to an Article, clause, Section, Schedule or paragraph unless otherwise indicated.

(k) No waiver by any Party of any default, misrepresentation or breach of warranty or covenant hereunder, whether intentional or not, shall be deemed to extend to any prior or subsequent default, misrepresentation or breach of warranty or covenant hereunder or affect in any way any rights arising by virtue of any prior or subsequent such occurrence. No single or partial exercise of any right, power or privilege shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege unless explicitly provided for in this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(l) Subject to the terms of and restrictions in this Agreement, the reference to any Party shall include its successors or permitted transferees that have legally acquired its rights, obligations and/or duties. This Agreement shall be binding upon and inure solely to the benefit of the Parties and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other Person any legal or equitable right, benefit or remedy of any nature whatsoever, unless otherwise specified therein.

(m) EACH OF THE PARTIES HEREBY WAIVES TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY WITH RESPECT TO ANY ACTION OR LIABILITY DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT. EACH OF THE PARTIES HEREBY (A) CERTIFIES THAT NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF ANY SUCH ACTION OR LIABILITY, SEEK TO ENFORCE THE FOREGOING WAIVER; AND (B) ACKNOWLEDGES THAT IT HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, AS APPLICABLE, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 8.3(m).

(n) This Agreement may be executed and delivered (including by means of electronic transmission, such as by electronic mail in ".pdf" form) in two or more counterparts, and by the different Parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement.

(o) Whenever the words "include," "includes" or "including" are used in this Agreement, they will be deemed to be followed by the words "without limitation." The words "hereof," "herein" and "hereunder" and words of similar import when used in this Agreement will refer to this Agreement as a whole and not to any particular provision of this Agreement. All terms used herein with initial capital letters have the meanings ascribed to them herein and all terms defined in this Agreement will have such defined meanings when used in any certificate or other document made or delivered pursuant hereto unless otherwise defined

therein. The definitions contained in this Agreement are applicable to the singular as well as the plural forms of such terms. Any agreement, instrument or statute defined or referred to herein, or in any agreement or instrument that is referred to herein, means such agreement, instrument or statute as from time to time amended, modified or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The use of "or" is not intended to be exclusive unless expressly indicated otherwise. References to sums of money are expressed in lawful currency of the United States (U.S. dollars), unless the Parties otherwise agree in writing to use a different currency.

(p) Both Parties are independent contractors under this Agreement. Nothing herein contained will be deemed to create an employment, agency, joint venture or partnership relationship between the Parties hereto or any of their agents or employees, or any other legal arrangement that would impose liability upon one Party for the act or failure to act of the other Party, except to the extent specifically agreed to in a written agreement signed by the Parties. Neither Party will have any express or implied power to enter into any contracts or commitments or to incur any liabilities in the name of, or on behalf of, the other Party, or to bind the other Party in any respect whatsoever.

[SIGNATURE PAGE FOLLOWS]

* - * - * - *

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their representatives thereunto duly authorized as of the Effective Date.

BAYER AG

By: _____
Name:
Title:

CRISPR THERAPEUTICS AG

By: _____
Name:
Title:

CRISPR THERAPEUTICS LIMITED

By: _____
Name:
Title:

CRISPR THERAPEUTICS, INC.

By: _____
Name:
Title:

TRACR HEMATOLOGY LTD.

By: _____
Name:
Title:

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(b)(viii)

Form of Intellectual Property Management Agreement

INTELLECTUAL PROPERTY MANAGEMENT AGREEMENT

This INTELLECTUAL PROPERTY MANAGEMENT AGREEMENT (this "**Agreement**") is entered into as of March 16, 2016 (the "**Effective Date**"), by and among, **VIVR, LLP**, a limited liability partnership incorporated under the laws of England and Wales ("**Company**"), **CRISPR THERAPEUTICS AG**, a corporation organized under the laws of Switzerland ("**CRISPR AG**"), **CRISPR THERAPEUTICS INC.**, a corporation organized under the laws of the state of Delaware ("**CRISPR Inc.**"), **CRISPR THERAPEUTICS LIMITED**, a corporation organized under the laws of England and Wales ("**CRISPR UK**") and **TRACR HEMATOLOGY LTD**, a UK limited company ("**TRACR**" and together with CRISPR AG, CRISPR Inc. and CRISPR UK "**CRISPR**"), and **BAYER AG** ("**Bayer**").

RECITALS

WHEREAS, Bayer and CRISPR, pursuant to a Joint Venture Agreement, dated as of December 19, 2015 (the "**Joint Venture Agreement**"), have entered into a joint venture focused on exploring potential targets related to certain diseases and creating therapeutics using gene editing or engineering systems or technology, including the Crispr/Cas Technology, to treat diseases; and

WHEREAS, the Parties wish to outline the ownership, Prosecution and Maintenance and enforcement of intellectual property rights developed under the Joint Venture Agreement.

NOW, THEREFORE, in consideration of the respective covenants, representations, warranties and agreements set forth herein, the Parties hereto agree as follows:

ARTICLE 1.
DEFINITIONS

1.1 "Action" means any claim, action, cause of action, chose in action or suit (whether in contract or tort or otherwise), litigation (whether at law or in equity, whether civil or criminal), controversy, assessment, arbitration, examination, audit, investigation, hearing, charge, complaint, demand, notice or proceeding to, from, by or before any Governmental Authority or arbitrator(s).

1.2 "Affiliate" or "Affiliates" means, with respect to any entity, any Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such entity; and for the purposes of this definition, "control" (and the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such entity, directly or indirectly, whether through the ownership of voting securities or by contract or otherwise. Without limiting the generality of the foregoing, a Person shall be deemed to control another Person if any of the following conditions is met: (a) in the case of corporate entities, direct or indirect ownership of at least fifty

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

percent (50%) of the stock or shares having the right to vote for the election of directors, and (b) in the case of non-corporate entities, direct or indirect ownership of at least fifty percent (50%) of the equity interest with the power to direct the management and policies of such non-corporate entities. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and that in such case such lower percentage shall be substituted in the preceding sentence, provided that such foreign investor has the power to direct the management and policies of such entity. For the purposes of this Agreement, (i) no Party or any of its Affiliates shall be considered an Affiliate of any other Party or any of its Affiliates or of the Company or any of its Affiliates, and neither the Company nor any of its Affiliates shall be considered an Affiliate of any Party or any of its Affiliates, simply by virtue of this Agreement or the relationships created hereby or by the Company Organization Documents or any Local Operating Agreement, and (ii) no Person shall be considered an Affiliate of a Party solely as a result of their right to designate a member of such Party's board of directors.

1.3 "Approval Application" means, with respect to a Licensed Product in a particular jurisdiction, an application for approval, license, registration or authorization necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, an application for approval for such Licensed Product by the FDA, and with respect to the European Union, an application for approval for such Licensed Product by the European Commission.

1.4 "Background Patents" means the Bayer Background Patents and the CRISPR Background Patents.

1.5 "Bayer Background Know-How" means any and all Know-How Controlled by Bayer, as of the Effective Date or that come into the Control of Bayer during the Technology Term, that might be useful or necessary to Company to Develop, Manufacture or Commercialize Crispr/Cas Technology, Licensed Agents or Products in the Fields.

1.6 "Bayer Background Patents" means any and all Patents that are Controlled by Bayer, as of the Effective Date or that come into the Control of Bayer during the Technology Term, and that are not part of the Joint Patents, and that claim or disclose Bayer Background Know-How.

1.7 "Bayer Background Technology" means all Bayer Background Know-How and Bayer Background Patents.

1.8 "Bayer Field" means any Field under the heading "Bayer Field" on Schedule 3.1 of the Joint Venture Agreement.

1.9 "Bayer IP Contribution Agreement" means that certain IP Contribution Agreement dated as of March 16, 2016 between Bayer and the Company.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.10 "Business Day" means any day other than a Saturday, a Sunday or a day on which banks in New York City, United States of America or Frankfurt-Main, Germany or Leverkusen, Germany are authorized or obligated by applicable law or executive order to close.

1.11 "Calendar Quarter" means the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31.

1.12 "Change of Control" means, with respect to Party, any of the following events: (a) any Person is or becomes the "beneficial owner" (as such term is used in Section 13(d) of the Securities Exchange Act of 1934, as amended, and Rule 13d-3 thereunder, except that a Person shall be deemed to have "beneficial ownership" of all shares that any such Person has the right to acquire, whether such right may be exercised immediately or only after the passage of time), directly or indirectly, of a majority of the total voting power represented by all classes of capital stock then outstanding of Party normally entitled to vote in elections of directors; (b) Party consolidates with or merges into another corporation or entity, or any corporation or entity consolidates with or merges into Party, other than (i) a merger or consolidation that would result in the voting securities of Party outstanding immediately prior to such merger or consolidation continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or any parent thereof) a majority of the combined voting power of the voting securities of Party or such surviving entity or any parent thereof outstanding immediately after such merger or consolidation, or (ii) a merger or consolidation effected to implement a recapitalization of Party (or similar transaction) in which no Person becomes the beneficial owner, directly or indirectly, of voting securities of Party representing a majority of the combined voting power of Party's then outstanding securities; or (c) Party conveys, transfers or leases all or substantially all of its assets to any Person other than a wholly-owned Affiliate of such Party; provided, that a financing transaction, the primary purpose of which is to raise capital for such Party, shall in no event be considered a Change of Control.

1.13 "Claims" means any claim, demand, suit, action, investigation, proceeding, governmental action or cause of action of any kind or character (in each case, whether civil, criminal, investigative or administrative), known or unknown, under any theory, including those based on theories of contract, tort, statutory liability, strict liability, employer liability, premises liability, products liability or breach of warranty.

1.14 "Clinical Trial" means a study in humans that is designed to generate data in support of an Approval Application.

1.15 "Combination Product" means any product that comprises a Licensed Product and at least one of the following, either packaged together or in the same formulation: […***…].

1.16 "Commercialize" or "Commercialization" means to market, promote, distribute, offer for sale, sell, have sold, import, export or otherwise commercialize a product, to conduct activities, other than, Development and Manufacturing, in preparation for the foregoing activities, including obtaining Price Approval, and to conduct Clinical Trials and post-Marketing Approval studies. When used as a noun, "Commercialization" means any and all activities involved in Commercializing.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.17 "Commercially Reasonable Efforts" means with respect to the efforts to be expended by any Person, with respect to any objective, reasonable, diligent and good faith efforts to accomplish such objective. With respect to any Objective relating to the research, Development or Commercialization of a Licensed Agent or Licensed Product, "Commercially Reasonable Efforts" means that level, caliber and quality of efforts and resources reasonably and normally used (as to CRISPR) by biopharmaceutical companies with adequate financing and resources, (as to Company), by biopharmaceutical companies of similar size to Company with adequate financing and resources and (as to Bayer) as Bayer would normally use to accomplish a similar objective under similar circumstances, as to a potential or actual product that is important to such Person's overall strategy or Objectives, taking into account, without limitation, with respect to each Licensed Agent or Licensed Product, (a) issues of safety, efficacy, product profile, (b) likelihood of receiving Marketing Approval for the applicable Product, (c) potential to accelerate the development and regulatory timelines for the Licensed Product, (d) regulatory structure involved, (e) Regulatory Authority-approved labeling, (f) market potential of the Licensed Product, (g) potential benefit of the Licensed Product to patients with the relevant indication, (h) competitiveness in the marketplace, (i) proprietary position and (j) other relevant scientific, technical and business factors deemed relevant by the applicable Party. "Commercially Reasonable Efforts" shall be determined on a country-by-country basis and activities that are conducted in one country that have an effect on achieving the relevant Objective in another country shall be considered in determining whether Commercially Reasonable Efforts have been applied in such other countries.

1.18 "Company CRISPR/Cas Know-How" means any Know-How Controlled by the Company that constitutes an addition, amendment or enhancement to the Crispr/Cas Technology that is not Company Optimized Cas Know-How that is […***…].

1.19 "Company CRISPR/Cas Patents" means any Patents Controlled by Company claiming or disclosing any Company CRISPR/Cas Know-How.

1.20 "Company Non-Product Know-How" means any and all Know-How Controlled by the Company during the Technology Term, including Delivery Technology and excluding Company CRISPR/Cas Know-How, Company Product Know-How and Company Optimized Cas Know-How, that, is […***…].

1.21 "Company Non-Product Patents" means any Patents Controlled by the Company claiming or disclosing any Company Non-Product Know-How.

1.22 "Company Optimized Cas Know-How" means all Know-How related to enhancements, amendments or additions in and to any nuclease element of the Crispr/Cas Technology […***…].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.23 "Company Optimized Cas Patents" means any Patents claiming or Covering Company Optimized Cas Know-How.

1.24 "Company Product Know-How" means any and all Know-How Controlled by the Company during the Technology Term that relates to the composition or use of a Licensed Agent or Product in the Fields, including guide RNA complementary to a Target in combination with a nuclease element, that is […***…].

1.25 "Company Product Patents" means any Patents Controlled by the Company that claim or disclose any Company Product Know-How.

1.26 "Company Program Know-How" means (i) Company Product Know-How, (ii) Company Non-Product Know-How, (iii) Company CRISPR/Cas Know-How (iv) Company Optimized Cas Know-How and (v) the Company's interest in any and all Joint Know-How.

1.27 "Company Program Patents" means (i) Company Product Patents, (ii) Company Non-Product Patents, (iii) Company CRISPR/Cas Patents (iv) Company Optimized Cas Patents and (v) the Company's interest in any and all Joint Patents.

1.28 "Company Program Technology" means the Company Program Know-How and the Company Program Patents.

1.29 "Control" means with respect to any Know-How or Patent or other data, information or Materials, possession of the ability by a Party or its Affiliate(s) (whether by sole or joint ownership, license or otherwise, but in all cases not including when such rights are granted or obtained pursuant to the Transaction Documents) to grant, without violating the terms of any agreement with a Third Party, a license, access or other right in, to or under such Know-How or Patent or other data, information or Materials. Notwithstanding anything in the Transaction Documents to the contrary, a Party will be deemed to not Control any Patents or Know-How that are owned or controlled by a Third Party described in the definition of "Change of Control," or such Third Party's Affiliates (other than an Affiliate of such Party prior to the Change of Control), (a) prior to the closing of such Change of Control, except to the extent that any such Patents or Know-How were developed prior to such Change of Control through the use of such Party's technology, or (b) after such Change of Control to the extent that such Patents or Know-How are developed or conceived by such Third Party or its Affiliates (other than such Party) after such Change of Control without using or incorporating such Party's technology. A Party does not need to amend any existing in-license as of the Effective Date so that such Party "Controls" any IP under such given in-license.

1.30 "Controlling Party" means the Party having the right under any Transaction Document to conduct and control (i) the Prosecution and Maintenance, (ii) challenges against validity and unenforceability or patentability of Intellectual Property and/or (iii) any Claim or action for enforcement directed to an actual or alleged infringement or misappropriation of Intellectual Property, in all cases, as and for so long as such Party maintains such right.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.31 “Cover,” “Covering” or “Covers” means, as to a product and Patent, that, in the absence of a license granted under, or ownership of, such Patent, the making, using, keeping, selling, offering for sale or importation of such product would infringe such Patent or, as to a pending claim included in such Patent, the making, using, selling, offering for sale or importation of such product would infringe such Patent if such pending claim were to issue in an issued patent without modification.

1.32 “Covered Target” means a Target as and for so long as such Target remains the subject of a license or similar grant of rights under the Existing Third Party Agreement. For the avoidance of doubt, Covered Targets shall not be deemed Third-Party Targets or Excluded Covered Targets.

1.33 “CRISPR Background Know-How” means any and all Know-How other than CRISPR Platform Technology Know-How Controlled by CRISPR, as of the Effective Date or that comes into the Control of CRISPR during the Technology Term, that is useful to or necessary for the Company to Develop, Manufacture or Commercialize Licensed Agents or Products in the Fields.

1.34 “CRISPR Background Patents” means any and all Patents other than a Company Program Patent or CRISPR Platform Technology Patent […***…].

1.35 “CRISPR Contributed Technology” means all CRISPR Platform Technology Patents, CRISPR Platform Technology Know-How, CRISPR Background Know-How and CRISPR Background Patents.

1.36 “CRISPR Field” means any Field under the heading “CRISPR Field” on Schedule 3.1 of the Joint Venture Agreement.

1.37 “CRISPR IP Contribution Agreement” means that certain IP Contribution Agreement dated as of March 16, 2016 between the CRISPR entities and the Company.

1.38 “CRISPR Platform Technology Know-How” means any […***…].

1.39 “CRISPR Platform Technology Patents” means any […***…].

1.40 “Crispr/Cas Technology” means clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) protein system that comprises (a) at least one guide RNA element that is complementary to a Target, wherein said guide RNA element can be a guide RNA or a polynucleotide(s) encoding such guide RNA, and (b) a nuclease element, wherein said nuclease element is a Cas nuclease protein.

1.41 “Delivery Technology” means methods, formulations, technologies and systems, including vectors, for transporting a Licensed Agent or Product into or within the human body or into human cells outside of the body.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.42 "Develop" or "Development" means, with respect to a Licensed Agent, all clinical and non-clinical research and development activities conducted for such Licensed Agent, including toxicology, pharmacology test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, Clinical Trials (other than post-Marketing Approval Clinical Trials), regulatory affairs, pharmacovigilance, Clinical Trial regulatory activities and obtaining and maintaining Regulatory Approval. When used as a verb, "Develop" or "Developing" means to engage in Development.

1.43 "EMA" means the European Medicines Agency and any successor entity thereto.

1.44 "European Commission" means the European Commission or any successor entity that is responsible for granting Marketing Approvals authorizing the sale of pharmaceuticals in the European Union.

1.45 "European Union" or "EU" means each and every country or territory that is officially part of the European Union.

1.46 "Existing Third Party Agreement" means that certain Strategic Collaboration, Option and License Agreement entered into by and between CRISPR (and certain of its Affiliates) and Vertex Pharmaceuticals, Incorporated (and certain of its Affiliates) dated as of October 26, 2015.

1.47 "FDA" means the United States Food and Drug Administration and any successor agency thereto.

1.48 "Fields" means the CRISPR Fields and the Bayer Fields, provided fields shall not include diagnosis, prevention or treatment of cystic fibrosis.

1.49 "GAAP" means United States generally accepted accounting principles, consistently applied, as in effect from time to time.

1.50 "Governmental Authority" means any court, agency, authority, department, regulatory body or other instrumentality of any government or country or of any national, federal, state, provincial, regional, county, city or other political subdivision of any such government or any supranational organization of which any such country is a member.

1.51 "IFRS" means International Accounting Standards/International Financial Reporting Standards of the International Accounting Standards Board as amended from time to time.

1.52 "In-License Agreement" means the agreements with Third Party licensors under which the CRISPR Contributed Technology or Bayer Background Technology is being licensed by CRISPR or Bayer, respectively.

1.53 "Intellectual Property" means (i) patents (including utility, design, plant, utility model, reissues, re-examination, and patents of addition), patent applications (filed, unfiled or being prepared), records of invention, (ii) trademarks (registered or unregistered), trademark applications, trade names, copyrights (registered or unregistered), copyright applications, mask works, service marks (registered or unregistered), service mark applications, database rights (registered or unregistered), all together with the goodwill

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

associated with such marks or names, (iii) trade secrets, technology, inventions, know-how, processes and confidential and proprietary information, including any being developed (including but not limited to designs, manufacturing data, design data, test data, operational data, and formulae), whether or not recorded in tangible form through drawings, software, reports, manuals or other tangible expressions, whether or not subject to statutory registration, anywhere, and all rights to any of the foregoing.

1.54 "Joint Know-How" means Know-How discovered, developed, invented or created jointly by […***…].

1.55 "Joint Patents" means any Patents claiming or Covering any Joint Know-How.

1.56 "Joint Technology" means (i) Joint Know-How and (ii) Joint Patents.

1.57 "Know-How" means Intellectual Property, data, results, pre-clinical and clinical protocols and data from studies and Clinical Trials, chemical structures, chemical sequences, information, inventions, know-how, formulas, trade secrets, techniques, methods, processes, procedures and developments, whether or not patentable; provided that Know-How does not include Patents claiming any of the foregoing.

1.58 "Law" or "Laws" means all applicable laws, statutes, rules, regulations and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, agency or other body, domestic or foreign, including any applicable rules, regulations, guidelines, or other requirements of the Regulatory Authorities that may be in effect from time to time.

1.59 "Licensed Agent" means a product comprising (a) all components of a Crispr/Cas Technology, for Targeting a Target, where such Crispr/Cas Technology, or any portion thereof is discovered by or on behalf of the Company or a Local Operating Entity (solely or jointly with such entities), or is in the Company's or a Local Operating Entity's Control, prior to the Effective Date, or during the Technology Term or (b) modified human cells or tissue, or another cell- or tissue-based product, or any other therapeutic product comprising or produced using the Crispr/Cas Technology, in each case produced using the components referred to in clause (a).

1.60 "Licensed Product" means any Product that (i) has been licensed by a Party following opt-in or (ii) licensed to a Third Party. All Products comprising the same Licensed Agent(s) (and no additional Licensed Agents) will be considered the same Licensed Product under this Agreement.

1.61 "Local Operating Agreement" means, as applicable, any agreement governing the formation and operation of any Local Operating Entity formed pursuant to Section 3.3 of the Joint Venture Agreement.

1.62 "Local Operating Entity" means any local operating entity formed by the Company pursuant to Section 3.3 of the Joint Venture Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.63 "Manufacture" or "Manufacturing" means activities directed to making, having made, producing, manufacturing, processing, filling, finishing, packaging, labeling, quality control testing and quality assurance release, shipping or storage of a product.

1.64 "Marketing Approval" means, with respect to a Licensed Product in a particular jurisdiction, all approvals, licenses, registrations or authorizations necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, approval of an Approval Application for such Licensed Product by the FDA and with respect to the European Union, approval of an Approval Application for such Licensed Product by the European Commission.

1.65 "Materials" means all biological materials or chemical compounds arising out of a Party's activities under this Agreement or otherwise provided by a Party for use by the other Party to conduct activities pursuant to this Agreement, including Licensed Agents, Clinical Trial samples, cell lines, assays, viruses and vectors.

1.66 "Net Sales" means the gross invoiced sales amount of Licensed Products billed by a licensee or its Affiliates or sublicensees, in each case to independent Third Parties, including to distributors and end-users, for the sale or other commercial disposition of Licensed Products in the Territory, less the following items as applicable to such Licensed Products to the extent actually taken or incurred with respect to such sale (the "Permitted Deductions") and all in accordance with standard allocation procedures, allowance methodologies and accounting methods consistently applied, in accordance with GAAP/IFRS as appropriate (except as otherwise provided below):

(a) credits or allowances for returns, rejections or recalls (due to spoilage, damage, expiration of useful life or otherwise), retroactive price reductions or billing corrections;

(b) separately itemized invoiced freight, postage, shipping and insurance, handling and other transportation costs;

(c) sales, use, value added and other similar taxes (excluding income taxes), tariffs, customs duties, surcharges and other governmental charges levied on the production, sale, transportation, delivery or use of the Licensed Products in the Territory that are incurred at time of sale or are directly related to the sale;

(d) any quantity, cash or other trade discounts, rebates, returns, refunds, charge backs, fees, credits or allowances (including amounts incurred in connection with government-mandated rebate and discount programs, Third Party rebates and charge backs, and hospital buying group/group purchasing organization administration fees and payor organizations), distribution fees, sales commissions paid to Third Parties, retroactive price reductions and billing corrections; and

(e) deductions for bad debts.

In the case of deductions for bad debts, the adjustment amount will be based on actual bad debts incurred and written off as uncollectible by the licensee in a quarter, net of any recoveries of previously written off bad debts from current or prior quarters.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Notwithstanding the foregoing, the following will not be included in Net Sales: (i) licensee's transfer of Licensed Product to an Affiliate (unless such sale is a final sale), (ii) Licensed Product provided by licensee or its Affiliate for administration to patients enrolled in clinical trials or distributed through a not-for-profit foundation at no or nominal charge to eligible patients and (iii) commercially reasonable quantities of Licensed Product used as samples to promote additional Net Sales.

Notwithstanding the foregoing, in the event a Licensed Product is sold as a Combination Product or together with one or more products for a single invoiced amount (in each case, a "Combination Sale"), the Net Sales amount for the Licensed Product sold in such a Combination Sale shall be that portion of the gross amount invoiced for such Combination Sale (less all Permitted Deductions) determined as follows:

Except as provided below, the Net Sales amount for a Combination Sale will equal the gross amount invoiced for the Combination Sale, reduced by the Permitted Deductions (the "Net Combination Sale Amount"), multiplied by the fraction A/(A+B), […***…].

In the event that the licensee, its Affiliates or sublicensees sell the Licensed Product included in a Combination Sale as a separate product in a country, but do not separately sell all of the other products or active ingredients/components, as the case may be, included in such Combination Sale in such country, the calculation of Net Sales resulting from such Combination Sale shall be determined by multiplying the Net Combination Sale Amount by the fraction A/C where A is the wholesale acquisition cost charged by the licensee, its Affiliates or its sublicensees, as applicable, in the country where such Combination Sale occurs, of the Licensed Product contained in the Combination Product if sold as a separate product in such country by the licensee, its Affiliates or its sublicensees, as applicable, and C is the wholesale acquisition cost charged by the licensee, its Affiliates or its sublicensees, as applicable, in such country for the entire Combination Sale.

In the event that the licensee, its Affiliates or its sublicensees do not sell the Licensed Product included in a Combination Sale as a separate product in the country where such Combination Sale occurs, but do separately sell all of the other products or active ingredients/components, as the case may be, included in the Combination Sale in such country, the calculation of Net Sales resulting from such Combination Sale shall be determined by multiplying the Net Combination Sale Amount by the fraction (C-D)/C, […***…].

If the calculation of Net Sales resulting from a Combination Sale in a country cannot be determined by any of the foregoing methods, the calculation of Net Sales for such Combination Sale shall be determined between the parties in good faith negotiations.

1.67 "Out-of-Pocket Costs" means, with respect to a Party, costs and expenses paid by such Party to Third Parties (or payable to Third Parties and accrued in accordance with GAAP or IFRS), other than Affiliates or employees of such Party.

1.68 "Party" or "Parties" means, when used in singular, any signatory to the applicable agreement, as the context may require, and when used in plural, all signatories to the applicable agreement, and any permitted successor or assign thereto.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.69 “Patents” means the rights and interests in and to issued patents and pending patent applications and similar government-issued rights (e.g., utility models) protecting inventions in any country, jurisdiction or region (including inventor’s certificates and utility models), including all priority applications, international applications, provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing.

1.70 “Patent Costs” means the reasonable fees and expenses paid to outside legal counsel, and filing, maintenance, disbursement and other reasonable Out-of-Pocket Costs paid to Third Parties, in connection with the Prosecution and Maintenance of Patents.

1.71 “Person” means any individual, partnership, limited partnership, limited liability company, joint venture, syndicate, sole proprietorship, company or corporation with or without share capital, unincorporated association, trust, trustee, executor, administrator or other legal personal representative or governmental body.

1.72 “Price Approval” means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

1.73 “Product” means any pharmaceutical product, medical therapy, preparation, substance, or formulation comprising or employing, in whole or in part, a Licensed Agent.

1.74 “Prosecution and Maintenance” or “Prosecute and Maintain” means, with regard to a Patent, the preparing, filing, prosecuting and maintenance of such Patent, as well as handling re-examinations and reissues with respect to such Patent, together with the conduct of interferences, the defense of oppositions and other similar proceedings with respect to the particular Patent. For clarification, Prosecution and Maintenance or Prosecute and Maintain will not include any other enforcement actions taken with respect to a Patent.

1.75 “Regulatory Approval” means the technical, medical and scientific licenses, registrations, authorizations and approvals (including approvals of Approval Applications, supplements and amendments, pre- and post- approvals, and labeling approvals) of any Regulatory Authority, necessary for the research, Development, clinical testing, commercial manufacture, distribution, marketing, promotion, offer for sale, use, import, export or sale of a pharmaceutical product in a regulatory jurisdiction, including Marketing Approval.

1.76 “Regulatory Authority” means, with respect to a country in the Territory, any national (e.g., the FDA), supra-national (e.g., the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Price Approvals for pharmaceutical products in such country or countries.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.77 “Target” means a polynucleotide sequence the activity, inactivity, function or expression of which is associated with a human disease that is within the Fields and which is to be edited, engineered or modulated in order to treat, ameliorate or prevent such disease. The Targets as of the Effective Date are listed on Schedule A with an indication of which human disease each is associated with, as well as the gene or sequence identification (Seq. ID) specified in Gene Bank. Additional Targets may be included after the Effective Date solely by updating Schedule A in accordance with Section 7.13 of the Joint Venture agreement.

1.78 “Targeting” means editing, engineering or modulating (including by means of gene knock-out, gene tagging, gene disruption, gene mutation, gene insertion, gene deletion, gene activation, gene silencing or gene knock-in) a Target or an Excluded Target or a Covered Target by means of hybridizing a guide RNA of the CRISPR/Cas Technology to such Target or Excluded Target or Covered Target.

1.79 “Technology Term” means from the Effective Date until the Company is no longer Developing Licensed Agents or Products.

1.80 “Territory” means all the countries of the world.

1.81 “Third Party” means any Person other than a Party or its Affiliates.

1.82 “Third Party Obligations” means any financial or non-financial encumbrances, obligations, restrictions, or limitations imposed by an In-License Agreement, including field or territory restrictions, covenants, diligence obligations or limitations pertaining to enforcement of intellectual property rights.

1.83 “Third-Party Target” means a Target that is the subject of a license or similar grant of rights pursuant to an agreement between CRISPR or one of its Affiliates and a Third-Party; provided, that such Target was licensed in accordance with the procedures set forth in Section 3.7 of the Joint Venture agreement. For the avoidance of doubt, Third-Party Targets include all Excluded Targets.

1.84 “United States” or “U.S.” means the fifty states of the United States of America and all of its territories and possessions and the District of Columbia.

1.85 “Valid Claim” means a claim (a) of any issued, unexpired United States or foreign Patent, which will not, in the country of issuance, have been donated to the public, disclaimed, nor held invalid or unenforceable by a court of competent jurisdiction in an unappealed or unappealable decision, or (b) of any United States or foreign patent application, which will not, in the country in question, have been cancelled, withdrawn or abandoned. Notwithstanding the foregoing, on a country-by-country basis, a patent application pending for more than seven years, or ten years for filings in Japan, will not be considered to have any Valid Claim for purposes of this Agreement unless and until a patent meeting the criteria set forth in clause (a) above with respect to such application issues.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.86 The following terms shall have the meanings defined in the Section or Schedule indicated. Unless otherwise noted, the indicated Section or Schedule refers to the appropriate Section or Schedule of this Agreement.

Term	Where defined
Abandonment	Section 2.2.3
Affected Party	Section 4.1
Agreement	First Paragraph
Agreement Term	Section 3.1
Bayer	First Paragraph
Combination Sale	Section 1.66
Company	First Paragraph
Company Organization Documents	Section 3.2(b)(i) of the Joint Venture Agreement
Compelled Party	Section 4.1
CRISPR	First Paragraph
CRISPR AG	First Paragraph
CRISPR Inc.	First Paragraph
CRISPR UK	First Paragraph
Effective Date	First Paragraph
Excluded Covered Targets	Section 3.6(i) of the Joint Venture Agreement
Excluded Target	Section 3.7 of the Joint Venture Agreement
Information	Section 4.1
Joint Venture Agreement	First Recital
Net Combination Sale Amount	Section 1.66
Objective	Section 3.1 of the Joint Venture Agreement
Opt-In Transaction	Option Agreement
Option Agreement	Section 3.2(b)(vi) of the Joint Venture Agreement
Patent Coordinator	Section 2.3
Permitted COC Transfer	Section 11.3 of the Joint Venture Agreement
Permitted Deductions	Section 1.66
Requesting Party	Section 4.4
Reviewing Party	Section 4.4
TRACR	First Paragraph
Transaction Documents	Section 3.2(b) of the Joint Venture Agreement

ARTICLE 2.
INTELLECTUAL PROPERTY

2.1 **Ownership; Assignment**. For the avoidance of doubt, the rights and obligations of the Parties under this Agreement are subject to and limited by any applicable Third Party Obligations.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.1.1 **Background Technology**. As between the Parties, each of the Parties will own and retain all of its right, title and interest in and to the Know-How and Patents Controlled by such Party as of the Effective Date or thereafter, in each case subject to any rights or licenses expressly granted by such Party under the Transaction Documents.

2.1.2 **The Company Program Technology.**

(a) The Company will promptly disclose to the other Parties in writing, and will cause its Affiliates to promptly disclose, the discovery, development, invention or creation of any Company Program Technology under this Agreement.

(b) The Company shall own all right, title and interest in and to the Company Program Technology, subject to any rights or licenses expressly granted by such Party under the Transaction Documents.

2.1.3 **Joint Technology.**

(a) The Company, CRISPR and Bayer shall jointly own Joint Know-How discovered, developed, invented or created jointly by (a) the Company, (b) CRISPR, its Affiliates or Third Parties, acting on CRISPR's behalf and (c) Bayer, its Affiliates or Third Parties, acting on Bayer's behalf and any Joint Patents claiming or covering any such Joint Know-How.

(b) The Company and Bayer shall jointly own Joint Know-How discovered, developed, invented or created jointly by (a) the Company and (b) Bayer, its Affiliates or Third Parties, acting on Bayer's behalf and any Joint Patents claiming or covering any such Joint Know-How.

(c) The Company and CRISPR shall jointly own Joint Know-How discovered, developed, invented or created jointly by (a) the Company and (b) CRISPR, its Affiliates or Third Parties, acting on CRISPR's behalf and any Joint Patents claiming or covering any such Joint Know-How.

(d) Except as and to the extent that rights of joint owners cannot be varied, waived or otherwise determined by mutual agreement under applicable Laws of any country, the joint owners of any Joint Technology shall have equal and undivided rights therein with the full right to practice and exploit such rights, including without limitation, granting sublicenses and similar right therein, without accounting to, or obtaining the consent of, the other joint owner and any required consents are hereby deemed provided, in all cases, subject to any rights or licenses expressly granted under the Transaction Documents.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(e) For Joint Technology owned by Bayer and the Company, (i) the Company grants to Bayer a perpetual, worldwide, royalty free, irrevocable, sublicenseable, non-exclusive license in the Company's rights in such Joint Technology to make, have made, use, sell, keep, offer for sale and import such Joint Technology and products and services using such Joint Technology, and (ii) Bayer grants to the Company a worldwide, royalty free, irrevocable, sublicenseable, non-exclusive license in Bayer's rights in such Joint Technology to make, have made, use, sell, keep, offer for sale and import such Joint Technology and products and services using such Joint Technology.

(f) For Joint Technology owned by CRISPR and the Company, (i) the Company grants to CRISPR a perpetual, worldwide, royalty free, irrevocable, sublicenseable, non-exclusive license in the Company's rights in such Joint Technology to make, have made, use, sell, keep, offer for sale and import such Joint Technology and products and services using such Joint Technology, and (ii) CRISPR grants to the Company a worldwide, royalty free, irrevocable, sublicenseable, non-exclusive license in CRISPR's rights in such Joint Technology to make, have made, use, sell, keep, offer for sale and import such Joint Technology and products and services using such Joint Technology.

(g) For Joint Technology owned by the Company, CRISPR and Bayer, (i) the Company grants to each of CRISPR and Bayer a perpetual, worldwide, royalty free, irrevocable, sublicenseable, non-exclusive license in the Company's rights in such Joint Technology to make, have made, use, sell, keep, offer for sale and import such Joint Technology and products and services using such Joint Technology (ii) CRISPR grants to each of the Company and Bayer a worldwide, royalty free, irrevocable, sublicenseable, non-exclusive license in CRISPR's rights in such Joint Technology to make, have made, use, sell, keep, offer for sale and import such Joint Technology and products and services using such Joint Technology (iii) Bayer grants to each of the Company and CRISPR a worldwide, royalty free, irrevocable, sublicenseable, non-exclusive license in Bayer's rights in such Joint Technology to make, have made, use, sell, keep, offer for sale and import such Joint Technology and products and services using such Joint Technology.

2.1.4 **Inventorship**. The inventorship in any Joint Technology and the Company Program Technology shall be determined in accordance with United States patent Laws. Any rights that an inventor may have in an invention shall be controlled by the applicable Law of the country where the inventor made the invention.

2.2 **Prosecution and Maintenance of Background Patents**. The Parties hereby agree as follows with respect to the Prosecution and Maintenance of the Background Patents.

2.2.1 **Bayer Background Patents**. Anything herein to the contrary notwithstanding, Bayer will have the sole rights with respect to the Prosecution and Maintenance of the Bayer Background Patents.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.2.2 **CRISPR Contributed Technology**. Anything herein to the contrary notwithstanding, CRISPR will have the sole rights with respect to the Prosecution and Maintenance of the Patents within the CRISPR Contributed Technology.

2.2.3 **The Company Program Patents**. The Company will be the Controlling Party for all aspects of the Prosecution and Maintenance of the Company Program Patents. The Company will use Commercially Reasonable Efforts to Prosecute and Maintain all the Company Program Patents. Notwithstanding the previous sentence, for the Company Crispr/Cas Patents, CRISPR shall have the first right to be Controlling Party; provided, however, if CRISPR decides to or fails to timely take actions that would cause it to (i) not file an application, (ii) restrict the scope of subject matter in such an application or (iii) abandon such an application or an issued Patent (individually and collectively an "Abandonment"), then CRISPR shall provide sufficient notice of such proposed Abandonment in a timely manner that allows the Company to pursue such patentable subject matter if it so elects, and if the Company does elect to proceed with the application or issued Patent, the Company may so elect to become the Controlling Party with respect to such application or Patent and CRISPR shall take steps to facilitate the Company becoming the Controlling Party.

2.2.4 **Joint Patents**. Anything in this Agreement to the contrary notwithstanding:

(a) The Company shall have the first right (but not the obligation) to be the Controlling Party with respect to Joint Patents in the Territory, that it co-owns. If the Company declines to be Controlling Party, then the other joint owner shall have the right to be Controlling Party, if such joint owner declines to be Controlling Party the other Party to this Agreement shall have the right to be Controlling Party. Notwithstanding the previous sentence, for the Joint Patents primarily related to Crispr/Cas Technology, CRISPR shall have the first right to be Controlling Party; provided, however, if CRISPR decides to or fails to timely take actions that would cause an Abandonment, then CRISPR shall provide sufficient notice of such proposed Abandonment in a timely manner that allows the Company to pursue such patentable subject matter if it so elects, and if the Company does elect to proceed with the application or issued Patent, the Company may so elect to become the Controlling Party with respect to such application or Patent and CRISPR shall take steps to facilitate the Company becoming the Controlling Party.

(b) Notwithstanding Section 2.2.4(a), if Bayer opts-in, it shall have the first right (but not the obligation) to be the Controlling Party with respect to Joint Patents in the Territory, to the extent that the Joint Patents Cover its opt-in Licensed Products and Licensed Agents.

(c) Notwithstanding Section 2.2.4(a), if CRISPR opts-in, it shall have the first right (but not the obligation) to be the Controlling Party with respect to Joint Patents in the Territory, to the extent that the Joint Patents Cover its opt-in Licensed Products and Licensed Agents.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(d) The cost of the prosecution, maintenance, challenges against validity and unenforceability or patentability with respect to the Joint Patents shall be borne equally by the co-owners.

2.2.5 **Other Matters Pertaining to Prosecution and Maintenance of Patents**.

(a) Each Party will keep the other Parties informed through their respective Patent Coordinators as to material developments with respect to the Prosecution and Maintenance of the Joint Patents and the Company Program Patents for which such Party has the responsibility for Prosecution and Maintenance pursuant to this Section 2.2, including by providing copies of any office actions or office action responses or other correspondence that such Party provides to or receives from any patent office, including notice of all interferences, reissues, re-examinations, or oppositions, and all Patent-related filings, and by providing the other Parties the timely opportunity to have reasonable input into the strategic aspects of such Prosecution and Maintenance. Although the Controlling Party shall have the final decision on responding to and taking any action with respect to the Prosecution and Maintenance of the Patents for which it is the Controlling Party, it shall take into consideration any suggestions recommended by the other Parties' patent counsel and reasonably incorporate any such changes. If there is a dispute among the Parties with respect to the Prosecution and Maintenance of such Patents, Controlling Party shall take reasonable efforts not to abandon any rights that are in dispute until such time as a resolution can be reached.

(b) The Controlling Party shall notify the other Parties in a timely manner of any decision not to prosecute or to abandon a Patent or pending application pertaining to the Joint Patents for which it is the Controlling Party or not to defend a challenge of invalidity, unenforceability or patentability with respect to any Joint Patent, at which point, the other Parties according to the order specified in Section 2.2.4(a) shall become Controlling Party and shall have the option, at its expense, of Prosecuting or Maintaining or defending any such pending application. In the event the Controlling Party determines at any time it does not want to pay any expenses for the Prosecution and/or Maintenance of a Joint Patent in any country in the Territory, the Controlling Party shall notify the other Parties in a timely manner of such determination and the other Parties according to the order specified in Section 2.2.4(a) shall become the next Controlling Party and shall have the right to prosecute and maintain such Joint Patent in such country in its sole name and at its sole cost and expense and the Controlling Party shall assign its undivided interest in such Joint Patent with respect to such country to such Party.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(c) The Company shall notify the other Parties in a timely manner of any decision not to prosecute or to abandon a Patent or pending application pertaining to the Company Program Patents or not to defend a challenge of invalidity, unenforceability or patentability with respect to any the Company Program Patent, at which point Bayer shall have the first option, at its expense, of Prosecuting or Maintaining or defending any pending application that pertain primarily to the Bayer Field or Bayer Background Know-How (and CRISPR shall have a secondary right with respect thereto) and CRISPR shall have the first option, at its expense, of Prosecuting or Maintaining or defending any other pending application (and Bayer shall have a secondary right with respect thereto).

(d) Bayer cannot abandon any Patents which are the subject of the Bayer IP Contribution Agreement and which Company has notified Bayer that Company is using without the approval of the Company, which approval will not be unreasonably withheld or delayed, and without offering the Company the right, at its own expense, to Prosecute or Maintain or defending such Patents.

(e) CRISPR cannot abandon any Patents which are the subject of the CRISPR IP Contribution Agreement and which Company has notified CRISPR that Company is using without the approval of the Company, which approval will not be unreasonably withheld or delayed, and without offering the Company the right, at its own expense, to Prosecute or Maintain or defending such Patents.

(f) To the extent that there is a dispute with respect to which Party is the Controlling Party for prosecution or maintenance of a Patent, an outside law firm agreed to by the Parties shall continue with prosecution and maintenance to obtain broad coverage with the intent to protect the Parties' Intellectual Property until such time as a resolution can be reached. The Parties will cooperate in good faith with each other and with the law firm handling the prosecution in order to reach such resolution, which might include dividing the subject matter into multiple applications directed to particular Controlling Parties to the extent consistent with applicable patent practice and the maintenance of broad coverage, and with the intent to protect and optimize the interested Parties' intellectual property rights.

(g) During the Term, each Party shall keep the other Parties reasonably informed as to the status of any applications or registrations covering the Joint Technology, the Company Program Technology, CRISPR Contributed Technology or Bayer Background Patents or Bayer Background Know-How (as applicable) in the Territory (which obligation shall be deemed satisfied by a Party through the provision to the other Parties of a quarterly status report), solely where and to the extent that such disclosures are permitted pursuant to any license agreements (such as CRISPR In-License Agreements or Bayer In-License Agreements) (if any) covering such intellectual property, as applicable, and solely where and to the extent any disclosure would not jeopardize any legal analysis privilege of the disclosing Party.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.3 **Patent Coordinators**. Each Party will appoint a patent coordinator reasonably acceptable to the other Parties (each, a "**Patent Coordinator**") to serve as such Party's primary liaison with the other Parties on matters relating to the Prosecution and Maintenance and enforcement of the Company Program Patents and Joint Patents. The Patent Coordinators will meet in person or by means of telephone or video conference at least once each Calendar Quarter during the Agreement Term. Each Party will provide the other Parties written notice of its Patent Coordinator and may replace its Patent Coordinator at any time by providing notice in writing to the other Parties.

2.4 **Patent Costs**. Patent Costs arising after the Effective Date for Patents within the CRISPR Contributed Technology will be borne by CRISPR. Patent Costs arising after the Effective Date for Bayer Background Patents will be borne by Bayer. Patent Costs arising after the Effective Date for the Company Program Patents will be borne by the Company. Patent Costs arising after the Effective Date for Joint Patents will be borne by the co-owners of such Joint Patent.

2.5 **Defense of Claims Brought by Third Parties**. If a Third Party initiates an Action against a Party claiming a Patent owned by or licensed to such Third Party is infringed by the Development, Manufacture or Commercialization of a Licensed Agent or Product, each Party that is named as a defendant in such Action will have the right to defend itself in such Action; provided, however if a Party has opted-in and is Commercializing a Licensed Agent or Product that is the subject of such suit, such Party shall have the first right to control the defense of such suit. The other Party(ies) will reasonably assist the defending Party(ies) in defending such Action and cooperate in any such litigation at the request and expense of the defending Party. The defending Party(ies) will provide the other Party(ies) with prompt written notice of the commencement of any such Action, will keep the other Party(ies) apprised of the progress of such Action, and will promptly furnish the other Party(ies) with a copy of each non-privileged communication relating to the alleged infringement that is received by such Party(ies). If all Parties are named as defendants in any Action, all Parties may defend such Action and the Parties will reasonably cooperate with respect to such defense.

2.6 **Enforcement of Patents Against Infringement**.

2.6.1 **Duty to Notify of Infringement**. If a Party learns of infringement, unauthorized use, misappropriation or threatened infringement by a Third Party, or any declaratory judgment action or any other action or proceeding alleging invalidity, unenforceability or non-infringement with respect to any Patents within the CRISPR Contributed Technology, Bayer Background Patents, Joint Patents or the Company Program Patents, such Party will promptly notify the other Parties in writing and will provide such other Parties with available information regarding such infringement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.6.2 **Enforcement**.

(a) CRISPR shall have the sole right (but not the obligation), at its own expense, to be the Controlling Party to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any CRISPR Contributed Technology.

(b) Bayer shall have the sole right (but not the obligation), at its own expense, to be the Controlling Party to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any Bayer Background Patents and Bayer Background Know-How.

(c) Controlling Party with respect to a Patent shall have the sole right (but not the obligation), at its own expense, to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any the Company Program Technology; provided, however, after termination or dissolution of the Company the Controlling Party shall be determined according to Section 3.2.

(d) The Controlling Party for Prosecution and Maintenance under Section 2.2 shall have the first right (but not the obligation), at its own expense, to be the Controlling Party to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any of the Company Program Technology.

(e) If a Party declines to bring any action under this Section 2.6 regarding Joint Technology, then the other Party(ies) shall have the right (but not the obligation), at its own expense, to be the Controlling Party to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any Joint Patents that it co-owns.

(f) If a Party declines to bring any action under this Section 2.6 regarding the Company Program Technology, then the other Parties shall have the right (but not the obligation), at their own expense, to be the Controlling Party to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any such Company Program Technology.

(g) Should a Party commence an action under the provisions of this Section 2.6 and thereafter elect to abandon the same, it shall give timely notice to the other Parties who may, if they so desire, continue prosecution of such suit.

(h) No Party shall settle any action covered by this Section 2.6 without first obtaining the consent of the other Parties, which consent shall not be unreasonably withheld, delayed or conditioned.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.6.3 **Joinder**.

(a) If a Party initiates an Action in accordance with this Section 2.6 the other Party(ies) agrees to be joined as a party plaintiff where necessary and to give the first Party reasonable assistance and authority to file and prosecute the Action, provided that the Party bringing suit agrees to reimburse the other Party(ies) for all out-of-pocket costs, damages and expenses (excluding reasonable attorneys' fees unless the Parties are unable to utilize the same legal counsel due to an ethical conflict), that it may incur in connection with such assistance or joinder, including any award of costs against it. Any costs, expenses or damages hereunder to be reimbursed by one Party to another Party shall be paid by the owing Party within thirty (30) Business Days of receipt of an invoice therefor, including evidence that such costs, expenses or damages have been incurred. The Parties agree to use Commercially Reasonable Efforts to cause Third Parties to be joined as a party plaintiff where necessary.

(b) If one Party initiates an Action in accordance with this Section 2.6, the other Parties may join such Action as a party plaintiff where necessary for such other Parties to seek lost profits with respect to such infringement.

2.6.4 **Share of Recoveries**. Any damages or other monetary awards recovered with respect to an Action brought pursuant to this Section 2.6 will be shared as follows:

(a) first be returned to the Controlling Party to reimburse the reasonable costs and expenses (including reasonable attorneys' fees and costs) incurred in enforcing the claim; provided, however, if the Parties bring an action or suit together, any amount recovered, will be applied pro-rata (based on the amounts paid by the Party in such action or suit) for their respective costs and expenses (including reasonable attorneys' fees and costs).

(b) to Bayer for enforcement of Bayer Background Know-How or Bayer Background Patents or CRISPR for enforcement of CRISPR Contributed Technology; provided, however, to the extent, such damages are for infringement and/or misappropriation in a Field for which a Party has opted-in, then such proceeds will be distributed to the Party that opted-in and are considered Net Sales and subject to any royalty obligations in the commercial license agreement for such opt-in.

(c) in the event (i) both CRISPR Contributed Technology and Bayer Background Know-How and Bayer Background Patents and/or (ii) the Company Program Technology and/or (iii) Joint Technology was infringed and/or misappropriated, divided in accordance with their percentage ownership of the Company; provided, however, to the extent, such damages are for infringement and/or misappropriation in a Field for which a Party has opted-in, then such proceeds will be distributed to the Party that opted-in and are considered Net Sales and subject to any royalty obligations in the commercial license agreement for such opt-in.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.7 **Patent Listing**. The Company will have the sole right, but not the obligation, to submit to all applicable Regulatory Authorities patent information pertaining to each applicable Product pursuant to 21 U.S.C. § 355(b) (or any amendment or successor statute thereto), any similar statutory or regulatory requirement enacted in the future regarding biologic products, or any similar statutory or regulatory requirement in any non-U.S. country or other regulatory jurisdiction.

2.8 **Precedence of Agreements**. For the avoidance of doubt, and notwithstanding any provisions in a commercial license agreement entered into pursuant to an Opt-In Transaction, this Agreement shall control the Prosecution and Maintenance of Patents by the Parties hereto.

ARTICLE 3.
TERM; TERMINATION

3.1 **Agreement Term; Expiration of Patents**. This Agreement is effective as of the Effective Date and will continue in full force and effect until the later of: (i) the last of the Patents covered by this Agreement expire or no longer have a Valid Claim and (ii) the Joint Technology no longer exists ("Agreement Term").

3.2 **Controlling Parties After Termination.** After termination of the Joint Venture Agreement, the Parties agree that: (a) CRISPR shall be the Controlling Party for any Company Program Patents that relate primarily to the (i) CRISPR Platform Technology Know-How (including, for the avoidance of doubt, all Company Crispr/Cas Patents) or (ii) CRISPR Field, and (b) Bayer shall be the Controlling Party for any other the Company Program Patents.

3.3 **Consequences of Expiration or Termination of the Joint Venture Agreement.** The following provisions shall terminate and be of no effect upon termination of the Joint Venture Agreement: Section 2.7, and any part of any other section which provides Company with the right to Control or the right to take any action.

ARTICLE 4.
CONFIDENTIALITY

4.1 **Confidentiality.** Each Party shall, and shall cause its Affiliates to, keep confidential any oral or written, tangible or intangible, proprietary or confidential information ("Information") of the other Parties or their respective Affiliates, or a Local Operating Entity, furnished to it by another Party, its Affiliates or their directors, officers, employees, representatives or agents, or by a Local Operating Entity or its directors, officers, employees, representatives or agents, or obtained by it in connection with the transactions contemplated by this Agreement or any other Transaction Document. The term "Information" shall be deemed to include those portions of any notes, analyses, compilations, studies, interpretations, memoranda or other documents (regardless of the form thereof) prepared by the receiving Party or its Affiliates or its or their directors, officers, employees, representatives or agents which contain, reflect or are based upon, in whole or in part, any Information of the disclosing Party or its Affiliates, or a Local

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Operating Entity. In addition, such Party and its Affiliates shall not use such Information except in connection with the transactions or the performance of the obligations of such Party or such Affiliate contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder or as expressly provided for herein or therein. No Party or its Affiliates will disclose the Information of another Party or its Affiliates, the Company or a Local Operating Entity to its Affiliates or its or their directors, officers, employees, representatives or agents unless such Person has a reasonable need to know such Information in connection with the transactions or the performance of the obligations of such Party or such Affiliates contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder or as expressly provided for herein or therein. No Party or its Affiliates shall release or disclose such Information to any other Person, except those among its auditors, attorneys, financial advisors, bankers and consultants having a need to know such Information in connection with the transactions or the performance of the obligations of such Party or such Affiliate contemplated hereby or any other Transaction Document, the exercise of any rights hereunder or thereunder, as required to comply with applicable Law or reporting requirements, or as expressly provided for herein or therein, or to actual or potential acquirers, collaborators, licensees, sub-licensees investment bankers, investors or lenders. Each Person receiving any such Information shall be subject to customary confidentiality obligations prior to such Person's receipt of such Information and such Party shall be primarily liable and responsible for any breach of this Section 4.1 as if such Person was a party hereto. In addition, each Party and its Affiliates are permitted to disclose such Information to the extent such disclosure is to a Governmental Authority as reasonably necessary in filing or prosecuting Patent, copyright and trademark applications, prosecuting or defending litigation related to this Agreement or any other Transaction Document, complying with applicable governmental regulations with respect to performance under this Agreement or any other Transaction Document or otherwise required by applicable Law. If a Party or any of its Affiliates (the "Compelled Party") is requested to disclose any Information by any governmental or regulatory authority (including stock exchange rules, GAAP or IFRS), the Compelled Party will promptly notify the other Party(ies), as applicable (the "Affected Party"), to permit it to seek a protective order or take other action that the Affected Party in its discretion deems appropriate, and the Compelled Party will cooperate in any such efforts to obtain a protective order or other reasonable assurance that confidential treatment will be accorded such Information. If, in the absence of a protective order, the Compelled Party is compelled as a matter of Law to disclose any such Information in any proceeding or pursuant to legal process (as advised by its outside legal counsel), the Compelled Party may disclose to the Person compelling disclosure only the part of such Information as is required by Law to be disclosed (in which case, prior to such disclosure, the Compelled Party will advise and consult with the Affected Party and its counsel as to such disclosure and the nature and wording of such disclosure) and the Compelled Party will use its reasonable best efforts to obtain confidential treatment therefor. The confidentiality obligations contained in this Section 4.1 do not apply to Information that can be shown by such Party to have been (i) previously known by the Party or its Affiliates to which it was furnished prior to the date hereof (and not under a confidentiality obligation), (ii) generally available to the public through no fault or breach of such Party or its Affiliates,

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(iii) later lawfully acquired from other sources (not under a confidentiality obligation) by the Party or its Affiliates to which it was furnished or (iv) independently developed by a Party or its Affiliates or its or their directors, officers, employees, representatives or agents without the use or reference to any Information of another Party, or their Affiliates, or any Local Operating Entity. For the avoidance of doubt, in no event shall any information provided by a Party or its Affiliates (or one of its directors, officers, employees, representatives or agents) to another Party or its Affiliates be considered Information of the other Party or its Affiliates, except for any Information created or developed under a service agreement between Bayer or CRISPR the Company or a Local Operating Entity. Following a termination of this Agreement, such confidentiality obligations and use restrictions shall be maintained, subject to the exceptions set forth above, and all Information of the other Party(ies) and its Affiliates (including all copies thereof) shall be returned (or, at the other Party's instructions, destroyed, with certification of the same) to the Party that the other Party(ies) and its Affiliates shall be permitted to retain such Information (i) to the extent necessary for purposes of performing any continuing obligations or exercising any ongoing rights hereunder or under a Transaction Document and, in any event, one copy of such Information retained by the other Party's legal department for its records (provided that for so long as such Information is so retained, such Information shall be subject to the confidentiality obligations and restrictions on use as set forth herein), and (ii) any computer records or files containing such Information that have been created solely by such Party's or its Affiliates' automatic archiving and back-up procedures, to the extent created and retained in a manner consistent with such Party's standard archiving and back-up procedures, but not for any other use or purposes.

4.2 **Duration of Confidentiality.** The provisions of Section 4.1 shall continue to apply with respect to each Party and its Affiliates until the date which is seven (7) years following the termination of this Agreement.

4.3 **Press Releases and Other Public Disclosures.** No Party shall issue any press release or otherwise make any public statement with respect to this Agreement or the other Transaction Documents without the prior written consent of the other Parties, except in case of public announcements required under the rules of any stock exchange on which the equity interests of a Party or its Affiliates (or any successor entity) are listed or any applicable Law or governmental requirement. Notwithstanding anything to the contrary in this Article 4, a Party (or its Affiliates) may disclose this Agreement and the other Transaction Documents (and a summary thereof) as well as the financial statements of the Company and Local Operating Entities and financial data derived therefrom, in securities filings with the U.S. Securities and Exchange Commission or an equivalent foreign agency to the extent required by applicable Law. In such event, the Party seeking such disclosure shall prepare such summary and a proposed redacted version of this Agreement and/or the other Transaction Documents to request confidential treatment for such agreements, and the other Parties may promptly (and in any event, no less than three (3) Business Days after receipt of such summary and proposed redactions) provide their comments. The Party seeking such disclosure shall reasonably consider any comments thereto provided by the other Parties within such three (3) Business Day period.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.4 **Publications.** During the Term, each Party (as the "Requesting Party") will submit to the other Party (as the "Reviewing Party") for review and approval any proposed academic, scientific and medical publication or public presentation to the extent it includes Information of the Reviewing Party. In each such instance, such review and approval will be conducted for the purposes of preserving the value of the CRISPR Contributed Technology (for CRISPR) or the Bayer Background Technology (for Bayer) or the Company Program Technology (for Company) and determining whether any portion of the proposed publication or presentation containing the Reviewing Party's Information should be modified or deleted. Written copies of such proposed publication or presentation required to be submitted hereunder will be submitted to the Reviewing Party no later than 15 Business Days before submission for publication or presentation (or five Business Days in advance in the case of an abstract). The Reviewing Party will provide its comments with respect to such publications and presentations within 10 Business Days of its receipt of such written copy (or five Business Days in the case of an abstract). The review period may be extended for an additional 30 days if the Reviewing Party reasonably requests such extension including for the preparation and filing of patent applications. Notwithstanding anything to the contrary, the Reviewing Party may require, in its reasonable discretion, that the Requesting Party redact the Reviewing Party's Information from any such proposed publication or presentation. The Parties will each comply with standard academic practice regarding authorship of scientific publications and recognition of contribution of other parties in any publication. Notwithstanding the foregoing, a Party's obligation to submit any publication to the Reviewing Party for review and approval under this Section 4.4 will not apply to any publication made by a Party with respect to Licensed Products for which such Party has completed an Opt-In Transaction that does not contain Information or disclose any non-public information of the Reviewing Party (other than, for the avoidance of doubt, Information relating to the Licensed Products for which such Opt-In Transaction relates); provided, that where reasonably possible, such Party will provide the Reviewing Party with an advance copy of such publication if such publication is reasonably likely to have a material adverse effect on the value of CRISPR Contributed Technology, Bayer Background Technology or Company Program Technology. For clarity, neither Bayer nor CRISPR are obligated hereunder to submit proposed publications to the other Parties for all proposed publications relating to work conducted outside of the scope of this Agreement and the other Transaction Documents.

4.5 **Attorney-Client Privilege.** No Party is waiving, nor will be deemed to have waived or diminished, any of its attorney work product protections, attorney client privileges or similar protections and privileges as a result of disclosing information pursuant to this Agreement, or any of its Information (including Information related to pending or threatened litigation) to a receiving Party, regardless of whether the disclosing Party has asserted, or is or may be entitled to assert, such privileges and protections. The Parties: (a) share a common legal and commercial interest in such disclosure that is subject to such privileges and protections; (b) are or may become joint defendants in proceedings to which the information covered by such protections and privileges relates; (c) intend that such privileges and protections remain intact should a Party become subject to any actual or threatened proceeding to which the disclosing Party's Information covered by such protections and privileges relates; and (d) intend that after the Effective Date both the receiving Party(ies) and the disclosing Party will have the right to assert such protections and privileges.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.6 **Prior Agreement.** This Agreement supersedes the Confidentiality Agreement entered into between Bayer AG and CRISPR dated August 19, 2015. All confidential information exchanged between the Parties under such agreement will be subject to the terms of this Agreement.

ARTICLE 5.
DISPUTE RESOLUTION

5.1 **Referral to Heads of Businesses.** Unless otherwise specified in this Agreement, the Parties hereby agree that to the extent reasonably practicable and would not materially prejudice a Party, controversies or claims arising out of or relating to this Agreement or the interpretation, performance, breach, termination or validity thereof shall first be referred to Bayer AG's Head of R&D, CRISPR's Chief Executive Officer and Company's Chief Executive Officer for resolution. If these individuals are unable to agree upon a resolution within thirty (30) days after referral of the matter to them, then a Party may pursue any available remedy hereunder, at law or in equity.

5.2 **Attorneys' Fees.** If any action at law or in equity (including, arbitration) is necessary to enforce or interpret the terms of this Agreement, including claims for fraud and/or fraudulent inducement, the prevailing Party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other relief to which such Party may be entitled.

5.3 **Jurisdiction.** Unless otherwise specified in this Agreement, each Party to this Agreement, by its execution hereof, unless otherwise prohibited by applicable Law (i) hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any action among the Parties, (ii) hereby waives and agrees not to assert, by way of motion, as a defense or otherwise, in any such action, any claim that it is not subject personally to the jurisdiction of the above-named courts, that any such action brought in one of the above-named courts should be dismissed on grounds of forum non conveniens, should be transferred or removed to any court other than one of the above-named courts, or should be stayed by reason of the pendency of some other proceeding in any court other than one of the above-named courts, or that this Agreement or the subject matter hereof may not be enforced in or by such court and (iii) to the extent that an action can be commenced in a court, agrees not to commence any such action in any court other than before one of the above-named courts. Notwithstanding the previous sentence, a Party hereto may commence any action in a court other than the above-named courts for the purpose of enforcing an order or judgment issued by one of the above-named courts.

5.4 **Venue**. No Party hereto will assert that venue should properly lie in any other location within the selected jurisdiction.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.5 **Specific Performance**. Each of the Parties hereto acknowledges and agrees that the other Party would be damaged irreparably in the event any of the provisions of this Agreement are not performed in accordance with their specific terms or otherwise are breached or violated. Accordingly, each of the Parties hereto agrees that, without posting a bond or other undertaking, the other Party may seek (and obtain) an injunction or injunctions to prevent breaches or violations of the provisions of this Agreement and to enforce specifically this Agreement and the terms and provisions hereof in any Action instituted in any court specified herein. An Action for specific performance as provided herein shall not preclude a Party hereto from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Agreement. Each Party hereto further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate provided, however, each Party hereto also agrees that any Party hereto can assert any other defense it may have other than the defense of adequate remedy at law.

5.6 **Governing Law.** The Parties agree that this Agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

ARTICLE 6.
ASSIGNMENT

6.1 **Assignment.** Except as permitted under the Joint Venture Agreement (including a Permitted COC Transfer complying with Article 11 of the Joint Venture Agreement) or this Agreement, (a) any of the rights, interests and obligations created herein shall not be transferred or assigned to any Third Party and such rights and interests shall not inure to the benefit of any other Person, including any trustee in bankruptcy, receiver or other successor of either of the Parties, whether by operation of Law, sub-license, transfer of the assets, merger, liquidation or otherwise, without the prior written consent of the other Party, and (b) any purported or actual transfer or assignment of any such rights, interests or obligations without the prior written consent of the other Party is and shall be null and void ab initio; provided, however, that either of the Parties may, without consent of the other Party, assign its respective rights and obligations under this Agreement to a successor company of such Party as the result of an internal corporate reorganization to a wholly-owned Affiliate of such Party; provided that the assigning Party shall remain primarily liable hereunder. In addition to the requirements of the prior sentence, if this Agreement is assigned to a Third Party by a Party, as a condition to such assignment, all other Transaction Documents to which such Party is a party shall concurrently be assigned to such Third Party and all Interests of such Party and its Affiliates are to be transferred to such Third Party.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 7.
NOTICES AND MISCELLANEOUS

7.1 **Form of Valid Notice.**

(a) All notices or other communications provided for in this Agreement or that may otherwise be required must be in writing, clearly legible and shall be sent:

(i) by an internationally recognized courier service with acknowledgment of receipt, properly addressed, and postage pre-paid;

(ii) e-mail, or

(iii) by personal delivery.

(b) Any notice sent by one of the means described in Section 7.1(a) will be deemed received:

(i) if sent by an internationally recognized courier service, three (3) Business Days after deposit with such courier service,

(ii) if sent by e-mail, when there is effective acknowledgment of receipt, or

(iii) if delivered personally, when delivered.

7.2 **Persons and Addresses.** Except as may otherwise be provided, all notices or other communications provided for in this Agreement or that a Party may otherwise be required to give to another Party shall be sent as provided in Section 7.1 to the following persons at the addresses stated herein or at such other address as a Party may specify by notice to the other Parties given in accordance with this Article 7:

To Company:
VIVR LLP
c/o Taylor Wessing
5 New Street Square
London EC4A 3TW
Attn: Andrew Davis

With a copy to:
Taylor Wessing
5 New Street Square
London EC4A 3TW
Attn: Andrew Davis

To CRISPR:
CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel
Switzerland
Attention: Chief Executive Officer and Chief Legal Officer

and

CRISPR Therapeutics Ltd.
85 Tottenham Court Road
London W1T 4TQ
United Kingdom
Attention: Chief Legal Officer

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

With a copy to:	Goodwin Procter LLP 53 State Street Boston, MA 02109 USA Attention: Mitchell S. Bloom and Robert E. Puopolo
To Bayer:	Bayer Aktiengesellschaft Kaiser-Wilhelm-Allee 51368 Leverkusen Germany Attention: Dr. Axel Bouchon and Dr. Jan Heinemann
With a copy to:	Norton Rose Fulbright US LLP 801 Pennsylvania Avenue, N.W. Washington, D.C. 20004-2623 USA Attention: Marilyn Mooney

7.3 **Miscellaneous.**

(a) No amendment, modification or addition to any provision of this Agreement shall be valid unless the same shall be in writing and approved by the signature of each Party.

(b) The terms and conditions of this Agreement shall be interpreted according to the common sense meaning intended by the Parties and in accordance with the principles of good faith and fair dealing.

(c) The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Agreement. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise.

(d) Every day commences at 12:00 a.m. and ends at 11:59 p.m. (midnight) New York time. Any reference in this Agreement to a number of days “in” which an action or notice is to be taken or given, shall be interpreted in such way that the term commences the day after the date taken as reference and that the action or notice shall be validly taken or given at the last day. Any reference in this Agreement to a “day” or a number of “days” without explicit qualification of “business” shall be interpreted as a reference to a calendar day or number of calendar days. If any action or notice is to be taken or given on or by a particular calendar day, and such calendar day is not a Business Day, then such action or notice shall be deferred until, or may be taken or given on, the next Business Day.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(e) In the event a Party becomes a debtor under Title 11 of the U.S. Code, this Agreement shall be deemed to be, for purposes of Section 365(n) of Title 11, a license to "Intellectual Property" as defined therein and the other Party and its Affiliates, and each of their successors and assigns as licensees shall have the rights and elections as specified in Section 365(n) of Title 11 of the U.S. Code. Without limiting the foregoing, upon termination of this Agreement by a trustee or executor of either Party which has rejected this Agreement pursuant to any non-contractual rights afforded to it by applicable bankruptcy law and/or a U.S. or foreign bankruptcy court or other tribunal of competent jurisdiction, all rights and licenses herein granted to the other Party shall nonetheless continue in full force and effect in accordance with the terms of this Agreement. The debtor Party shall take such actions to provide similar protections for the non-debtor Party pursuant to similar laws in other jurisdictions.

(f) This Agreement shall constitute the entire agreement and understanding between the Parties and shall supersede and nullify any and all previous agreements, negotiations, commitments, undertakings and declarations heretofore made between the Parties in respect of the subject matter of this Agreement unless expressly provided for herein or in any schedule attached hereto and any other agreement entered in connection herewith.

(g) Words importing gender include all genders.

(h) The division of this Agreement into articles, sections and clauses, the inclusion of a table of contents and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement.

(i) Each provision contained in this Agreement is distinct and severable. A declaration of invalidity, illegality or unenforceability of any provision or a part thereof by an arbitrator, a court or a tribunal of competent jurisdiction shall not affect the validity or enforceability of any other provision of this Agreement. To the extent permitted by law, if any provision of this Agreement, or the application thereof to any Person or any circumstance, is invalid or unenforceable, (i) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (ii) the remainder of this Agreement and the application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application thereof, in any other jurisdiction.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(j) Any mistaken reference to Articles, clauses, Sections, Schedules or paragraphs of this Agreement shall be amended according to common sense and good faith rules. When a reference is made in this Agreement to an Article, clause, Section, Schedule or paragraph, such reference will be to an Article, clause, Section, Schedule or paragraph unless otherwise indicated.

(k) No waiver by any Party of any default, misrepresentation or breach of warranty or covenant hereunder, whether intentional or not, shall be deemed to extend to any prior or subsequent default, misrepresentation or breach of warranty or covenant hereunder or affect in any way any rights arising by virtue of any prior or subsequent such occurrence. No single or partial exercise of any right, power or privilege shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege unless explicitly provided for in this Agreement.

(l) Subject to the terms of and restrictions in this Agreement, the reference to any Party shall include its successors or permitted transferees that have legally acquired its rights, obligations and/or duties. This Agreement shall be binding upon and inure solely to the benefit of the Parties and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other Person any legal or equitable right, benefit or remedy of any nature whatsoever, unless otherwise specified therein.

(m) EACH OF THE PARTIES HEREBY WAIVES TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY WITH RESPECT TO ANY ACTION OR LIABILITY DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT. EACH OF THE PARTIES HEREBY (A) CERTIFIES THAT NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF ANY SUCH ACTION OR LIABILITY, SEEK TO ENFORCE THE FOREGOING WAIVER; AND (B) ACKNOWLEDGES THAT IT HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, AS APPLICABLE, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 5.3(l).

(n) This Agreement may be executed and delivered (including by means of electronic transmission, such as by electronic mail in ".pdf" form) in two or more counterparts, and by the different Parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement.

(o) Whenever the words "include," "includes" or "including" are used in this Agreement, they will be deemed to be followed by the words "without limitation." The words "hereof," "herein" and "hereunder" and words of similar import when used in this Agreement will refer to this Agreement as a whole and not to any particular provision of this Agreement. All terms used herein with initial capital letters have the meanings ascribed to them herein and all terms

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

defined in this Agreement will have such defined meanings when used in any certificate or other document made or delivered pursuant hereto unless otherwise defined therein. The definitions contained in this Agreement are applicable to the singular as well as the plural forms of such terms. Any agreement, instrument or statute defined or referred to herein, or in any agreement or instrument that is referred to herein, means such agreement, instrument or statute as from time to time amended, modified or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The use of "or" is not intended to be exclusive unless expressly indicated otherwise. References to sums of money are expressed in lawful currency of the United States (U.S. dollars), unless the Parties otherwise agree in writing to use a different currency.

(p) The Parties are independent contractors under this Agreement. Nothing herein contained will be deemed to create an employment, agency, joint venture or partnership relationship between the Parties hereto or any of their agents or employees, or any other legal arrangement that would impose liability upon one Party for the act or failure to act of the other Party, except to the extent specifically agreed to in a written agreement signed by the Parties. No Party will have any express or implied power to enter into any contracts or commitments or to incur any liabilities in the name of, or on behalf of, another Party, or to bind another Party in any respect whatsoever.

[SIGNATURE PAGE FOLLOWS]

* - * - * - *

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their representatives thereunto duly authorized as of the Effective Date.

BAYER AG

By: _____
Name:
Title:

VIVR LLP

By: _____
Name:
Title:

CRISPR THERAPEUTICS AG

By: _____
Name:
Title:

CRISPR THERAPEUTICS LIMITED

By: _____
Name:
Title:

CRISPR THERAPEUTICS, INC.
By: _____
Name:
Title:

TRACR HEMATOLOGY LTD.

By: _____
Name:
Title:

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.2(b)(x)

Form of CRISPR IP Contribution Agreement

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 5.2

CRISPR Disclosures

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 3.6(i)

Excluded Covered Targets

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 6.2

Matters Requiring Approval of Members

1. A Change of Control of the Company or a Local Operating Entity.

2. Except as otherwise provided in this Agreement, offer of securities in the Company (including any Interest) or a Local Operating Entity (or equivalent equity securities in a successor entity) for sale to the public, including the filing of a registration statement with the Securities and Exchange Commission pursuant to the U.S. Securities Act of 1933, as amended.

3. Issuance of securities or any like interests in any successor entity of a Local Operating Entity (or any option on or other security convertible or exchangeable for interests or any such securities) to any Third Party or any existing Member, or the issuance of additional equity in the Company to any Third Party.

4. Any modification, change or alteration in any material respect of the nature of the business of the Company or a Local Operating Entity as it may be conducted from time to time.

5. Except as provided in Article 16, the Company Organization Documents or any Local Operating Agreement, dissolution or liquidation of the Company or any Local Operating Entity or the filing of a petition, or consent to filing, under any applicable bankruptcy law by the Company or any Local Operating Entity.

6. Except as provided in Article 16, the Company Organization Documents or the Local Operating Agreement, the amendment or cancellation of the Certificate of Incorporation of the Company (or other applicable formation document of the Company) or any similar document related to any Local Operating Entity.

7. Increase or decrease the size, or composition of, the Management Board.

8. Make any distribution to the Members (other than those required by the Company Organization Documents or the Agreement).

9. Except as provided in Article 16, the Company Organization Documents or the Local Operating Agreement, the adoption, amendment or termination of the Company's Limited Liability Partnership Agreement or any Local Operating Agreement.

10. Admission of new Members except as permitted by the Agreement.

11. The approval, conclusion or filing of any documents or information relating to the Company's or a Local Operating Entity's tax positions with any tax authority from time to time, or making any material tax election of the Company or a Local Operating Entity, other than the tax elections consistent with and made in accordance with the procedures in the Tax Appendix.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

12. Inclusion of additional Targets on the Excluded Covered Targets schedule.

13. Any matter explicitly stipulated in the Agreement for approval of the Members or both Parties.

14. Any change in the fiscal year of the Company or a Local Operating Entity.

15. Enter into any agreement or otherwise commit to take, or cause to be taken, any of the actions set forth above.

Any of the foregoing items involving any direct or indirect subsidiary of the Company, including any Local Operating Entity, shall also require the approval of the Members.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 7.9(b)

Matters Requiring Board Approval

The following matters require approval by the affirmative vote of a majority of the members of the Management Board, including the affirmative vote of at least one member of the Management Board appointed by each Party.

1. Modifications or amendments to the Rolling Budget or the Initial Budget, as applicable, and the Rolling Business Plan or the Initial Business Plan, as applicable, if such modification or amendment, in the aggregate with the other modifications and amendments for the applicable fiscal year, results in an increase to the allocated annual budget amount for such fiscal year in excess of […***…] of such amount.

2. Incurring any debt for borrowed money or the encumbrance of any assets of the Company or any Local Operating Entity, or the issuance of a guarantee to any Third-Party by the Company or any Local Operating Entity.

3. Acquisitions, exclusive licenses and investments, in a transaction or series of related transactions, involving property or fixed assets that are not contemplated by the Initial Business Plan or the applicable Rolling Business Plan, as applicable, or in excess of the amounts approved in the Initial Budget or applicable Rolling Budget, as applicable; provided that no such vote shall be required for any Acquisition Transaction funded pursuant to Section 9.1(c)(ii)(2) or Section 9.1(d) of the Agreement.

4. Except for any transactions consummated pursuant to the Option Agreement, divestitures or exclusive licenses involving property or fixed assets of the Company or a Local Operating Entity, in a transaction or series of related transactions, to the extent not contemplated by the Initial Business Plan or the applicable Rolling Business Plan, as applicable, or in excess of the amounts approved in the Initial Budget or applicable Rolling Budget, as applicable.

5. Entering into, amending or terminating any Related Party Transaction, including the renewal, termination (other than as contemplated by Section 16.2(c) of the Agreement) or amendment of, or waiver of any rights under, the CRISPR Services Agreement, the Bayer Services Agreement, the Bayer IP Contribution Agreement or the CRISPR IP Contribution Agreement.

6. Formation, dissolution or liquidation of any direct or indirect subsidiary of the Company, including any Local Operating Entity, unless otherwise provided for in the Company Organization Document or Local Operating Agreements.

7. Appointment and remuneration of the CEO.

8. Institution, compromise, termination or settlement of litigation or other disputes with Third Parties involving claims directly implicating the Company's Program Technology, or otherwise of […***…] or more, except in each case if a Party has the right to institute, compromise, terminate or settle such litigation or other dispute under the Intellectual Property Management Agreement (in which case, such Management Board approval shall not apply).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

9. The adoption or modification of any employee pension plan, bonus or profit-sharing scheme or any option or incentive scheme or employee trust or ownership plan to acquire Interests.

10. Appointment and change of the auditor of the Company or Local Operating Entity; provided, that if the Management Board does not appoint such auditor, the CEO of the Company may appoint an auditor with a national reputation reasonably selected by the CEO.

11. Allocation of contributed cash inconsistent in any material respect with the methodology set forth in Section 9.6.

12. Adoption or material modification of any accounting rules and policies of the Company or a Local Operating Entity, other than as required by GAAP or IFRS.

13. The approval (or amendment to) the officer selection guidelines contemplated by Section 8.4(a).

14. Participation by the Company or a Local Operating Entity in any joint venture or partnership; provided, that this does not apply to any transaction consummated pursuant to the Option Agreement.

15. Cash contributions by one Party that are not contemplated by the Agreement.

16. Any actions explicitly stipulated in the Agreement to be taken by the Management Board.

17. Enter into any agreement or otherwise commit to take, or cause to be taken, any of the actions set forth above.

Any of the foregoing items involving any direct or indirect subsidiary of the Company, including any Local Operating Entity, shall also require the approval of the Management Board as set forth above.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 8.11

Initial Budget and Initial Investment Budget of the Company

	2016	2017
Initial Budget	$[…***…]	$[…***…]
Initial Investment Budget	$[…***…]	$[…***…]

Technology Access Fee (payable to CRISPR): $35

* All amounts in millions of US dollars.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 14.1

Representations and Warranties of CRISPR

CRISPR represents and warrants to Bayer that as of the date hereof, subject to the exceptions provided in the disclosure schedule attached hereto (the "Disclosure Schedule"):

1. Due Organization. CRISPR is duly organized, validly existing and, if applicable in the jurisdiction of organization, in good standing under the laws of the jurisdiction of its organization and has the corporate power and lawful authority to own its assets and properties and to carry on its business.

2. Authority to Execute and Perform Agreement. CRISPR has the full corporate right, power and authority to enter into, execute and deliver the Agreement and, prior to the Effective Date, will have the full corporate right, power and authority to enter into, execute and deliver the other Transaction Documents to which it is or it is currently contemplated will be a party and to perform fully its obligations hereunder and, prior to the Effective Date, thereunder. The execution and delivery by CRISPR of the Agreement, the execution and delivery by CRISPR of the other Transaction Documents to which it is or it is currently contemplated will be a party and the consummation by them of the transactions currently contemplated to occur hereby and thereby have been (or in the case of the other Transaction Documents, prior to the Effective Date will be) duly authorized and approved by all necessary corporate and its respective organizational documents, and if required the approval of their respective stockholders which has been obtained (or will be obtained prior to the Effective Date with respect to the other Transaction Documents). The Agreement has been duly executed and delivered, and the other Transaction Documents to which it is or it is currently contemplated will be a party when they are executed and delivered, by CRISPR and, assuming the due execution and delivery by Bayer, constitutes the valid and binding obligation of CRISPR, enforceable in accordance with its terms, except to the extent that the enforceability thereof may be affected by bankruptcy, insolvency, and other laws of general application affecting the enforcement of creditors' rights and by general principles of equity that may limit the availability of equitable remedies.

3. No Litigation or Proceeding Pending. There is no litigation or proceeding pending or, to the Knowledge of CRISPR, is any investigation pending or litigation, proceeding or investigation threatened in writing involving CRISPR or its Affiliates, which could reasonably be expected to materially and adversely affect the performance of CRISPR's obligations under the Agreement or any other Transaction Document.

4. Lack of Conflicts. Neither the execution and delivery by CRISPR of the Agreement, nor the execution and delivery by CRISPR or its Affiliates of any other Transaction Document to which they are or will be a party, nor the consummation by them of the transactions currently contemplated to occur hereby and thereby, does or will (i) conflict with, or result in the breach of any provision of, the articles of incorporation, by-laws or other constituent documents of CRISPR or any of its Affiliates, (ii) violate in any material respect any applicable Law or any permit, order, award, injunction, decree or judgment of any Governmental Authority applicable to or binding upon CRISPR or any of its Affiliates or to which any of their properties or assets is subject or (iii) violate, conflict with or result in the breach or termination of, or otherwise give

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

any other Person the right to terminate, or constitute a default, event of default or an event that with notice, lapse of time or both, would constitute a default or event of default under the terms of, any material instrument, material contract or other material agreement to which CRISPR or any of its Affiliates is a party.

5. No Governmental Approvals or Third Party Consents. No approvals or other consents from a Governmental Authority ("Governmental Approvals") are required (other than the expiration of the waiting period under the HSR Act) in connection with the execution and delivery by CRISPR or its Affiliates of the Agreement or any other Transaction Document or the closing of the transactions contemplated by the Agreement except for such consents other than Government Approvals as would not, in the aggregate, have a material adverse effect on the consolidated business of CRISPR and its Affiliates. At or prior to the Effective Date, no Government Approval will be required by CRISPR or any of its Affiliates for the consummation of the transactions currently contemplated to occur by the Agreement and the other Transaction Documents to which CRISPR or any of its Affiliates are party. At or prior to the Effective Date, no third party consent (other than Government Approvals) will be required by CRISPR or any of its Affiliates for the consummation of the transactions currently contemplated to occur by the Agreement and the other Transaction Documents to which CRISPR or any of its Affiliates is a party, except for such third party consents as would not, in the aggregate, have a material adverse effect on the consolidated business of CRISPR and its Affiliates.

6. Disclaimer of Other Representations and Warranties. NEITHER CRISPR NOR ANY OF ITS AFFILIATES, NOR ANY OF ITS OR THEIR REPRESENTATIVES, EMPLOYEES, DIRECTORS, MANAGERS, OFFICERS, EMPLOYEES OR EQUITYHOLDERS HAS MADE, AND SHALL NOT BE DEEMED TO HAVE MADE, ANY REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, OF ANY NATURE WHATSOEVER RELATING TO CRISPR OR ITS AFFILIATES OR THE BUSINESS OR ASSETS OF CRISPR OR ANY OF ITS AFFILIATES OR OTHERWISE IN CONNECTION WITH THE TRANSACTIONS CONTEMPLATED HEREBY, OTHER THAN THOSE REPRESENTATIONS AND WARRANTIES EXPRESSLY SET FORTH IN THIS SCHEDULE 14.1. Without limiting the generality of the foregoing, neither CRISPR, its Affiliates nor any representative, employee, officer, manager, director or equityholder of CRISPR or its Affiliates, has made, and shall not be deemed to have made, any representations or warranties in the materials relating to the business or assets of CRISPR and its Affiliates made available to Bayer, and no statement contained in any of such materials shall be deemed a representation or warranty hereunder or otherwise or deemed to be relied upon by Bayer in executing, delivering and performing the Agreement and the transactions contemplated thereby.

Certain information set forth in the Disclosure Schedules is included solely for informational purposes and may not be required to be disclosed pursuant hereto. The disclosure of any information shall not be deemed to constitute an acknowledgment that such information is required to be disclosed in connection with the representations and warranties made by CRISPR herein or that such information is material, nor shall such information be deemed to establish a standard of materiality, nor shall it be deemed an admission of any liability of, or concession as to any defense available to, CRISPR. The section number headings in the Disclosure Schedules correspond to the section numbers herein and any information disclosed in any section of the Disclosure Schedules shall be deemed to be disclosed and incorporated into any other section of

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

the Disclosure Schedules where the relevance of such disclosure is reasonably apparent. The information contained in the Disclosure Schedule is solely for purposes of the Agreement, and no information contained herein shall be deemed to be an admission by CRISPR or its Affiliates to any third party of any matter whatsoever, including of any obligation, violation of Law, liability or breach of any agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 14.1 - Disclosure Schedule

Regarding 14.1.2

- *See the matters described in Schedule 5.2.7 of the CRISPR IP Contribution Agreement*

Regarding 14.1.3

- *See the matters described in Schedule 5.2.11 of the CRISPR IP Contribution Agreement*

Regarding 14.1.4

- *See the matters described in Schedule 5.2.7 of the CRISPR IP Contribution Agreement*

Regarding 14.1.5

- *See the matters described in Schedule 5.2.7 of the CRISPR IP Contribution Agreement*

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 14.2

Representations and Warranties of Bayer

Bayer represents and warrants to CRISPR that as of the date hereof:

1. Due Organization. Bayer is duly formed, validly existing and, if applicable in the jurisdiction of organization, in good standing under the laws of the jurisdiction of its organization and has the corporate power and lawful authority to own its assets and properties and to carry on its business.

2. Authority to Execute and Perform Agreement. Bayer has the full corporate right, power and authority to enter into, execute and deliver the Agreement and, prior to the Effective Date, will have the full corporate right, power and authority to enter into, execute and deliver the other Transaction Documents to which it is or it is currently contemplated will be a party and to perform fully its obligations hereunder and, prior to the Effective Date, thereunder. The execution and delivery by Bayer of the Agreement, the execution and delivery by Bayer of the other Transaction Documents to which it is or it is currently contemplated will be a party and the consummation by them of the transactions currently contemplated to occur hereby and thereby have been (or in the case of the other Transaction Documents, prior to the Effective Date will be) duly authorized and approved by all necessary corporate and its respective formation documents. The Agreement has been duly executed and delivered, and the other Transaction Documents to which it is or it is currently contemplated will be a party when they are executed and delivered, by Bayer and, assuming the due execution and delivery by CRISPR, constitute the valid and binding obligation of Bayer, enforceable in accordance with their terms, except to the extent that the enforceability thereof may be affected by bankruptcy, insolvency, and other laws of general application affecting the enforcement of creditors' rights and by general principles of equity that may limit the availability of equitable remedies.

3. No Litigation or Proceeding Pending. There is no litigation or proceeding pending or, to the Knowledge of Bayer, is any investigation pending or litigation, proceeding or investigation threatened in writing involving Bayer or its Affiliates, which could reasonably be expected to materially and adversely affect the performance of Bayer's obligations under the Agreement or any other Transaction Document.

4. Lack of Conflicts. Neither the execution and delivery by Bayer of the Agreement, nor the execution and delivery by Bayer or its Affiliates of any other Transaction Document to which they are or will be a party, nor the consummation by them of the transactions currently contemplated to occur hereby and thereby, does or will (i) conflict with, or result in the breach of any provision of, the certificate of formation, by-laws or other constituent documents of Bayer or any of its Affiliates, (ii) violate in any material respect any applicable Law or any permit, order, award, injunction, decree or judgment of any Governmental Authority applicable to or binding upon Bayer or any of its Affiliates or to which any of their properties or assets is subject or (iii) violate, conflict with or result in the breach or termination of, or otherwise give any other Person the right to terminate, or constitute a default, event of default or an event that with notice, lapse of time or both, would constitute a default or event of default under the terms of, any material instrument, material contract or other material agreement to which Bayer or any of its Affiliates is a party.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5. No Governmental Approvals or Third Party Consents. No approvals or other consents from a Governmental Authority ("Governmental Approvals") are required (other than the expiration of the waiting period under the HSR Act) in connection with the execution and delivery by Bayer or its Affiliates of the Agreement or any other Transaction Document or the closing of the transactions contemplated by the Agreement except for such consents other than Government Approvals as would not, in the aggregate, have a material adverse effect on the consolidated business of Bayer and its Affiliates. At or prior to the Effective Date, no Government Approval will be required by Bayer or any of its Affiliates for the consummation of the transactions currently contemplated to occur by the Agreement and the other Transaction Documents to which Bayer or any of its Affiliates are party. At or prior to the Effective Date, no third party consent (other than Government Approvals) will be required by Bayer or any of its Affiliates for the consummation of the transactions currently contemplated to occur by the Agreement and the other Transaction Documents to which Bayer or any of its Affiliates is a party, except for such third party consents as would not, in the aggregate, have a material adverse effect on the consolidated business of Bayer and its Affiliates.

6. Disclaimer of Other Representations and Warranties. NEITHER BAYER NOR ANY OF ITS AFFILIATES, NOR ANY OF ITS OR THEIR REPRESENTATIVES, EMPLOYEES, DIRECTORS, MANAGERS, OFFICERS, EMPLOYEES OR EQUITYHOLDERS HAS MADE, AND SHALL NOT BE DEEMED TO HAVE MADE, ANY REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, OF ANY NATURE WHATSOEVER RELATING TO BAYER OR ITS AFFILIATES OR THE BUSINESS OR ASSETS OF BAYER OR ANY OF ITS AFFILIATES OR OTHERWISE IN CONNECTION WITH THE TRANSACTIONS CONTEMPLATED HEREBY, OTHER THAN THOSE REPRESENTATIONS AND WARRANTIES EXPRESSLY SET FORTH IN THIS SCHEDULE 14.2. Without limiting the generality of the foregoing, neither Bayer, its Affiliates nor any representative, employee, officer, manager, director or equityholder of Bayer or its Affiliates, has made, and shall not be deemed to have made, any representations or warranties in the materials relating to the business or assets of Bayer and its Affiliates made available to CRISPR, and no statement contained in any of such materials shall be deemed a representation or warranty hereunder or otherwise or deemed to be relied upon by Bayer in executing, delivering and performing the Agreement and the transactions contemplated thereby.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Appendix
Tax Matters

RECITALS

Bayer and CRISPR, pursuant to a Joint Venture Agreement, dated December 19, 2015, (the "JV Agreement"), have established a joint venture entity for the development and commercialization of products in the Fields (the "Company").

The Parties wish to provide for the treatment of certain tax matters relating to the Company and the Parties.

NOW THEREFORE, THIS APPENDIX WITNESSES that, in consideration of the mutual promises, covenants, warranties and undertakings set forth herein and in the JV Agreement, and for other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. Definitions

   a. Capitalized terms not defined in this Appendix shall have the meanings attributed to them by the JV Agreement, including Schedule 1.1 thereto.

   b. "Code" means the US Internal Revenue Code of 1986, as amended from time to time (or any corresponding provisions of succeeding law).

   c. The "Net Income" or "Net Loss" of the Company shall be as computed for U.S. Federal income tax purposes, other than with respect to those items specifically allocated in Sections 3(b) and (c) of this Appendix. The Net Income or Net Loss of the Company shall be computed with the adjustments required to comply with the capital account maintenance rules of Treasury Regulations § 1.704-1(b)(2)(iv).

   d. "Regulations" means the US Income Tax Regulations, including Temporary Regulations, promulgated under the Code, as such regulations may be amended from time to time (including corresponding provisions of succeeding regulations).

2. Tax Treatment of Company. Each Party acknowledges that this Agreement creates a partnership for U.S. federal and state income tax purposes. Neither the Company nor any Party may make an election for the Company to be excluded from the application of the provisions of subchapter K of chapter 1 of subtitle A of the Code or any similar provisions of applicable U.S. state law. No officer, agent, director, manager, employee or partner of the Company is authorized to, or may, file Internal Revenue Service Form 8832 (or such alternative or successor form) to elect to have the Company be classified as a corporation for U.S. federal income tax purposes, in accordance with Regulations Section 301.7701-3.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

3. Allocations of Profits and Losses

   a. Subject to Sections 3(b) and (c) of this Appendix, Net Income or Net Loss of the Company shall be allocated equally to the Parties.

   b. Notwithstanding Section 3(a) of this Appendix, gain or loss on the sale or other disposition of the CRISPR Contributed Technology, the Bayer Licensed Technology, the Company Program Technology and all other intellectual property beneficially owned by the Company shall be allocable in accordance with the economic terms of the JV Agreement.

   c. The provisions of the JV Agreement, the Company organizational documents and this Appendix relating to the allocations of profits and Losses are intended to comply with Regulations Sections 1.704-1 and 1.704-2. In the event that events cause the allocations set forth in the JV Agreement, the Company organizational documents or this Appendix not to be in accordance with the Regulations, then notwithstanding any other provision of the JV Agreement, the Company organizational or this Appendix, the Tax Matters Partner may make such modifications (including the addition of special allocation provisions specified by Regulations Section 1.704-2) that are necessary to cause such allocations to have substantial economic effect within the meaning of Regulations Section 1.704-1(b)(2) or to be deemed to be in accordance with the partners' interests in the Company under Regulations Section 1.704-1.

4. Tax Allocations. Any elections or other decisions relating to allocations under Section 704(c) of the Code, including the selection of any allocation method permitted under Regulations Section 1.704-3, shall be made as approved by the Tax Matters Partner in any manner that reasonably reflects the purpose and intention of Section 704(c) of the Code.

5. Tax Matters

   a. The Company shall maintain a separate capital account for each Party (each, a "Capital Account") according to the rules of Regulations Section 1.704-1(b)(2)(iv).

   b. All elections and decisions required or permitted to be made by the Company under any applicable tax law shall be made by the Tax Matters Partner. The Tax Matters Partner shall prepare all necessary U.S. federal, state and local income tax returns for the Partnership.

   c. Bayer is hereby designated the initial tax matters partner and partnership representative for the Partnership within the meaning of sections 6231(a)(7) and 6223(a) of the Code (the "Tax Matters Partner").

6. Withholding. The Company shall comply with withholding requirements under U.S. federal, state and local law and foreign law and shall remit amounts withheld to and file required forms with the applicable jurisdictions. Each Party agrees to furnish the Company with any representations and forms as shall reasonably be requested by the Company to assist it in determining the extent of, and in fulfilling, its withholding obligations.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7. Notwithstanding anything herein to the contrary, the Tax Matters Partner shall not make any material filing, return, or election or take any material position in writing with respect to any U.S. federal, state, local or foreign tax authority (a "Tax Decision"), without consulting in good faith with and obtaining the prior consent of the other Party which shall not be unreasonably withheld, conditioned or delayed, provided that, this requirement shall not prevent the Tax Matters Partner from making a timely Tax Decision as required by law. The Tax Matters Partner shall provide as much advance

8. notice as possible to the other Party, but no less than ten Business Days, in advance of making a Tax Decision, unless such time period is impractical. The other Party shall provide a response to the Tax Matters Partner as soon as possible, but not later than five Business Days prior to the due date or date on which any such Tax Decision is to be made, as applicable, unless such time period is impractical. The other Party may request the Tax Matters Partner to make a Tax Decision which the Tax Matters Partner shall consider in good faith and shall not unreasonably withhold, delay or condition consent to such request.

    a. To the extent that there is a dispute with respect to a Tax Decision and there is sufficient time, an outside law firm or accounting firm agreed to by the Parties shall assist the Parties with the negotiation of the various tax positions until such time as a resolution can be reached. The Parties will cooperate in good faith with each other and with the law firm or accounting firm handling such matter in order to reach such resolution.

8. In any jurisdiction outside the U.S., the Parties agree to cooperate in good faith to come to mutual agreement on all Tax Decisions.

9. As used herein, Parties shall refer to the Party or the affiliate of such Party which holds equity interests in the Company.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SPECIFIC TERMS IN THIS EXHIBIT HAVE BEEN REDACTED BECAUSE CONFIDENTIAL TREATMENT FOR THOSE TERMS HAS BEEN REQUESTED. THESE REDACTED TERMS HAVE BEEN MARKED IN THIS EXHIBIT WITH THREE ASTERISKS [***]. AN UNREDACTED VERSION OF THIS EXHIBIT HAS BEEN SEPARATELY FILED WITH THE SECURITIES AND EXCHANGE COMMISSION.

Exhibit 10.2

CRISPR IP CONTRIBUTION AGREEMENT

This CRISPR IP Contribution AGREEMENT (this "**Contribution Agreement**") is entered into as of March 16, 2016 (the "**Effective Date**"*)* by and between, on the one hand,**VIVR LLP**, a limited liability partnership duly incorporated under the laws of England and Wales ("**Company**"), and, on the other hand, **CRISPR THERAPEUTICS AG**, a corporation organized under the laws of Switzerland ("**CRISPR AG**"), **CRISPR THERAPEUTICS, INC.,** a corporation organized under the laws of the state of Delaware ("**CRISPR Inc."), CRISPR THERAPEUTICS LIMITED**, a corporation organized under the laws of England and Wales ("**CRISPR UK**") and **TRACR HEMATOLOGY LTD**, a UK limited company ("**TRACR"** and together with CRISPR AG, CRISPR Inc. and CRISPR UK "**CRISPR**").

RECITALS

WHEREAS, Bayer AG ("**Bayer**") and CRISPR AG, pursuant to a Joint Venture Agreement, dated as of December 19, 2015, (the "**Joint Venture Agreement**"), have entered into a joint venture focused on exploring potential targets related to certain diseases and creating therapeutics using gene editing or engineering systems or technology, including the Crispr/Cas Technology, to treat diseases;

WHEREAS, CRISPR possesses certain Patents, Know-How, technology and expertise with respect to the Crispr/Cas Technology; and

WHEREAS, CRISPR desires to license such Crispr/Cas Technology to the Company in furtherance of the joint venture.

NOW, THEREFORE, in consideration of the respective covenants, representations, warranties and agreements set forth herein, the Parties hereto agree as follows:

ARTICLE 1.
DEFINITIONS

For purposes of this Contribution Agreement, the following capitalized terms will have the following meanings:

1.1. "Action" means any claim, action, cause of action, chose in action or suit (whether in contract or tort or otherwise), litigation (whether at law or in equity, whether civil or criminal), controversy, assessment, arbitration, examination, audit, investigation, hearing, charge, complaint, demand, notice or proceeding to, from, by or before any Governmental Authority or arbitrator(s).

1.2. "Affiliate" or "Affiliates" means, with respect to any entity, any Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such entity; and for the purposes of this definition, "control" (and the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such entity, directly or indirectly, whether through the ownership of voting securities or by contract or otherwise. Without limiting the

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

generality of the foregoing, a Person shall be deemed to control another Person if any of the following conditions is met: (a) in the case of corporate entities, direct or indirect ownership of at least fifty percent (50%) of the stock or shares having the right to vote for the election of directors, and (b) in the case of non-corporate entities, direct or indirect ownership of at least fifty percent (50%) of the equity interest with the power to direct the management and policies of such non-corporate entities. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and that in such case such lower percentage shall be substituted in the preceding sentence, provided that such foreign investor has the power to direct the management and policies of such entity. For the purposes of this Contribution Agreement, (i) no Party or any of its Affiliates shall be considered an Affiliate of any other Party or any of its Affiliates or of the Company or any of its Affiliates, and neither the Company nor any of its Affiliates shall be considered an Affiliate of any Party or any of its Affiliates, simply by virtue of this Contribution Agreement or the relationships created hereby or by the Company Organization Documents or any Local Operating Agreement, and (ii) no Person shall be considered an Affiliate of a Party solely as a result of their right to designate a member of such Party's board of directors.

1.3. "Approval Application" means, with respect to a Licensed Product in a particular jurisdiction, an application for approval, license, registration or authorization necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, an application for approval for such Licensed Product by the FDA, and with respect to the European Union, an application for approval for such Licensed Product by the European Commission.

1.4. "Bayer Field" means any Field under the heading "Bayer Field" on Schedule 3.1 of the Joint Venture Agreement.

1.5. "Business Day" means any day other than a Saturday, a Sunday or a day on which banks in New York City, United States of America or Frankfurt-Main, Germany or Leverkusen, Germany are authorized or obligated by applicable law or executive order to close.

1.6. "Change of Control" means, with respect to Party, any of the following events: (a) any Person is or becomes the "beneficial owner" (as such term is used in Section 13(d) of the Securities Exchange Act of 1934, as amended, and Rule 13d-3 thereunder, except that a Person shall be deemed to have "beneficial ownership" of all shares that any such Person has the right to acquire, whether such right may be exercised immediately or only after the passage of time), directly or indirectly, of a majority of the total voting power represented by all classes of capital stock then outstanding of Party normally entitled to vote in elections of directors; (b) Party consolidates with or merges into another corporation or entity, or any corporation or entity consolidates with or merges into Party, other than (i) a merger or consolidation that would result in the voting securities of Party outstanding

immediately prior to such merger or consolidation continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or any parent thereof) a majority of the combined voting power of the voting securities of Party or such surviving entity or any parent thereof outstanding immediately after such merger or consolidation, or (ii) a merger or consolidation effected to implement a recapitalization of Party (or similar transaction) in which no Person becomes the beneficial owner, directly or indirectly, of voting securities of Party representing a majority of the combined voting power of Party's then outstanding securities; or (c) Party conveys, transfers or leases all or substantially all of its assets to any Person other than a wholly-owned Affiliate of such Party; provided, that a financing transaction, the primary purpose of which is to raise capital for such Party, shall in no event be considered a Change of Control.

1.7. "Clinical Trial" means a study in humans that is designed to generate data in support of an Approval Application.

1.8. "Commercialize" or "Commercialization" means to market, promote, distribute, offer for sale, sell, have sold, import, export or otherwise commercialize a product, to conduct activities, other than, Development and Manufacturing, in preparation for the foregoing activities, including obtaining Price Approval, and to conduct Clinical Trials and post-Marketing Approval studies. When used as a noun, "Commercialization" means any and all activities involved in Commercializing.

1.9. "Companion Diagnostic" means any companion diagnostic tool and/or diagnostic assay, the manufacture, use, sale or importation of which is Covered by the Company Crispr/Cas Technology, Company Optimized Cas Technology, CRISPR Background Know-How and CRISPR Platform Technology Know-How, which is used to (i) identify patients who are most likely to benefit from a Licensed Agent or Product, (ii) identify patients likely to be at increased risk for serious adverse reactions as a result of treatment with a Licensed Agent and/or Product, and/or (iii) monitor a patient's response to a Licensed Agent and/or Product for the purpose of adjusting treatment (e.g., schedule, dose, discontinuation) to achieve improved safety or effectiveness.

1.10. "Company CRISPR/Cas Know-How" means any Know-How Controlled by the Company that constitutes an addition, amendment or enhancement to the Crispr/Cas Technology that is not Company Optimized Cas Know-How that is […***…].

1.11. "Company CRISPR/Cas Patents" means any Patents Controlled by Company claiming or disclosing any Company CRISPR/Cas Know-How.

1.12. "Company CRISPR/Cas Technology" means the Company CRISPR/Cas Know-How and the Company CRISPR/Cas Patents.

1.13. "Company Non-Product Know-How" means any and all Know-How Controlled by the Company during the Technology Term, including Delivery Technology and excluding Company CRISPR/Cas Know-How, Company Product Know-How and Company Optimized Cas Know-How, that, is […***…].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.14. “Company Non-Product Patents” means any Patents Controlled by the Company claiming or disclosing any Company Non-Product Know-How.

1.15. “Company Non-Product Technology” means the Company Non-Product Know-How and the Company Non-Product Patents.

1.16. “Company Optimized Cas Know-How” means all Know-How related to enhancements, amendments or additions in and to any nuclease element of the CRISPR/Cas Technology (i) discovered, developed, invented or created by employees of Company or others acting for or on behalf of the Company, including, without limitation, Bayer or CRISPR in performance of services for the Company or (ii) acquired or licensed by Company from Third Parties, excluding such Know-How in-licensed through the Parties.

1.17. “Company Optimized Cas Patents” means any Patents claiming or Covering Company Optimized Cas Know-How.

1.18. “Company Optimized Cas Technology” means the Company Optimized Cas Know-How and Company Optimized Cas Patents.

1.19. “Company Product Know-How” means any and all Know-How Controlled by the Company during the Technology Term that relates to the composition or use of a Licensed Agent or Product in the Fields, including […***…].

1.20. “Company Product Patents” means any Patents Controlled by the Company that claim or disclose any Company Product Know-How.

1.21. “Company Program Patents” means (i) the Company Product Patents, (ii) Company Non-Product Patents, (iii) Company CRISPR/Cas Patents, (iv) Company Optimized Cas Patents, and (v) the Company’s interest in any and all Joint Patents.

1.22. “Control” means with respect to any Know-How or Patent or other data, information or Materials, possession of the ability by a Party or its Affiliate(s) (whether by sole or joint ownership, license or otherwise, but in all cases not including when such rights are granted or obtained pursuant to the Transaction Documents) to grant, without violating the terms of any agreement with a Third Party, a license, access or other right in, to or under such Know-How or Patent or other data, information or Materials. Notwithstanding anything in the Transaction Documents to the contrary, a Party will be deemed to not Control any Patents or Know-How that are owned or controlled by a Third Party described in the definition of “Change of Control,” or such Third Party’s Affiliates (other than an Affiliate of such Party prior to the Change of Control), (a) prior to the closing of such Change of Control, except to the extent that any such Patents or Know-How were developed prior to such Change of Control through the use of such Party’s technology, or (b) after such Change of Control to the extent that such Patents or Know-How are

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

developed or conceived by such Third Party or its Affiliates (other than such Party) after such Change of Control without using or incorporating such Party's technology. A Party does not need to amend any existing in-license as of the Effective Date so that such Party "Controls" any IP under such given in-license.

1.23. "Cover," "Covering" or "Covers" means, as to a product and Patent, that, in the absence of a license granted under, or ownership of, such Patent, the making, using, keeping, selling, offering for sale or importation of such product would infringe such Patent or, as to a pending claim included in such Patent, the making, using, selling, offering for sale or importation of such product would infringe such Patent if such pending claim were to issue in an issued patent without modification.

1.24. "Covered Target" means a Target as and for so long as such Target remains the subject of a license or similar grant of rights under the Existing Third Party Agreement. For the avoidance of doubt, Covered Targets shall not be deemed Third-Party Targets or Excluded Covered Targets.

1.25. "CRISPR Background Know-How" means any and all Know-How other than CRISPR Platform Technology Know-How Controlled by CRISPR, as of the Effective Date or that comes into the Control of CRISPR during the Technology Term, that is useful to or necessary for the Company to Develop, Manufacture or Commercialize Licensed Agents or Products in the Fields.

1.26. "CRISPR Background Patents" means any and all Patents other than a Company Program Patent or CRISPR Platform Technology Patent […***…].

1.27. "CRISPR Background Technology" means all CRISPR Background Know-How and CRISPR Background Patents.

1.28. "CRISPR Contributed Technology" means all CRISPR Platform Technology Patents, CRISPR Platform Technology Know-How, CRISPR Background Know-How and CRISPR Background Patents.

1.29. "CRISPR Field" means any Field under the heading "CRISPR Field" on Schedule 3.1 of the Joint Venture Agreement.

1.30. "CRISPR Platform Technology Know-How" means any […***…].

1.31. "CRISPR Platform Technology Patents" means any and […***…].

1.32. "Crispr/Cas Technology" means clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) protein system that comprises (a) at least one guide RNA element that is complementary to a Target, wherein said guide RNA element can be a guide RNA or a polynucleotide(s) encoding such guide RNA, and (b) a nuclease element, wherein said nuclease element is a Cas nuclease protein.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.33. “Delivery Technology” means methods, formulations, technologies and systems, including vectors, for transporting a Licensed Agent or Product into or within the human body or into human cells outside of the body.

1.34. “Develop” or “Development” means, with respect to a Licensed Agent, all clinical and non-clinical research and development activities conducted for such Licensed Agent, including toxicology, pharmacology test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, Clinical Trials (other than post-Marketing Approval Clinical Trials), regulatory affairs, pharmacovigilance, Clinical Trial regulatory activities and obtaining and maintaining Regulatory Approval. When used as a verb, “Develop” or “Developing” means to engage in Development.

1.35. “EMA” means the European Medicines Agency and any successor entity thereto.

1.36. “European Commission” means the European Commission or any successor entity that is responsible for granting Marketing Approvals authorizing the sale of pharmaceuticals in the European Union.

1.37. “Existing Third Party Agreement” means that certain Strategic Collaboration, Option and License Agreement entered into by and between CRISPR (and certain of its Affiliates) and Vertex Pharmaceuticals, Incorporated (and certain of its Affiliates) dated as of October 26, 2015.

1.38. “FDA” means the United States Food and Drug Administration and any successor agency thereto.

1.39. “Fields” means the CRISPR Fields and the Bayer Fields, provided fields shall not include diagnosis, prevention or treatment of cystic fibrosis.

1.40. “Governmental Authority” means any court, agency, authority, department, regulatory body or other instrumentality of any government or country or of any national, federal, state, provincial, regional, county, city or other political subdivision of any such government or any supranational organization of which any such country is a member.

1.41. “Human Therapeutic Use” means the use of the CRISPR/Cas Technology for use in the discovery, research and development of products for the treatment or prevention of any human disease, disorder or condition, including researching, developing, making, using or selling Licensed Agents or Products and Companion Diagnostics.

1.42. “In-License Agreement” means the agreements with Third Party licensors under which the CRISPR Contributed Technology is being licensed by CRISPR.

1.43. “Intellectual Property” means (i) patents (including utility, design, plant, utility model, reissues, re-examination, and patents of addition), patent applications (filed, unfiled or being prepared), records of invention, (ii) trademarks (registered or

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

unregistered), trademark applications, trade names, copyrights (registered or unregistered), copyright applications, mask works, service marks (registered or unregistered), service mark applications, database rights (registered or unregistered), all together with the goodwill associated with such marks or names, (iii) trade secrets, technology, inventions, know-how, processes and confidential and proprietary information, including any being developed (including but not limited to designs, manufacturing data, design data, test data, operational data, and formulae), whether or not recorded in tangible form through drawings, software, reports, manuals or other tangible expressions, whether or not subject to statutory registration, anywhere, and all rights to any of the foregoing.

1.44. "Joint Know-How" means Know-How discovered, developed, invented or created jointly by […***…].

1.45. "Joint Patents" means any Patents claiming or Covering any Joint Know-How.

1.46. "Know-How" means Intellectual Property, data, results, pre-clinical and clinical protocols and data from studies and Clinical Trials, chemical structures, chemical sequences, information, inventions, know-how, formulas, trade secrets, techniques, methods, processes, procedures and developments, whether or not patentable; provided that Know-How does not include Patents claiming any of the foregoing.

1.47. "Knowledge" means, with respect to CRISPR, the actual knowledge of […***…] after having made reasonable inquiries of CRISPR personnel and advisors that would reasonably be anticipated to have knowledge of facts relating to the relevant subject matter.

1.48. "Law" or "Laws" means all applicable laws, statutes, rules, regulations and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, agency or other body, domestic or foreign, including any applicable rules, regulations, guidelines, or other requirements of the Regulatory Authorities that may be in effect from time to time.

1.49. "Licensed Agent" means a product comprising (a) all components of a Crispr/Cas Technology, for Targeting a Target, where such Crispr/Cas Technology, or any portion thereof is discovered by or on behalf of the Company or a Local Operating Entity (solely or jointly with such entities), or is in the Company's or a Local Operating Entity's Control, prior to the Effective Date, or during the Technology Term or (b) modified human cells or tissue, or another cell- or tissue-based product, or any other therapeutic product comprising or produced using the Crispr/Cas Technology, in each case produced using the components referred to in clause (a).

1.50. "Licensed Product" means any Product that (i) has been licensed by a Party following opt-in or (ii) licensed to a Third Party. All Products comprising the same Licensed Agent(s) (and no additional Licensed Agents) will be considered the same Licensed Product under this Contribution Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.51. “Local Operating Agreement” means, as applicable, any agreement governing the formation and operation of any Local Operating Entity formed pursuant to Section 3.3 of the Joint Venture Agreement.

1.52. “Local Operating Entity” means any local operating entity formed by the Company pursuant to Section 3.3 of the Joint Venture Agreement.

1.53. “Manufacture” or “Manufacturing” means activities directed to making, having made, producing, manufacturing, processing, filling, finishing, packaging, labeling, quality control testing and quality assurance release, shipping or storage of a product.

1.54. “Marketing Approval” means, with respect to a Licensed Product in a particular jurisdiction, all approvals, licenses, registrations or authorizations necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, approval of an Approval Application for such Licensed Product by the FDA and with respect to the European Union, approval of an Approval Application for such Licensed Product by the European Commission.

1.55. “Materials” means all biological materials or chemical compounds arising out of a Party’s activities under this Contribution Agreement or otherwise provided by a Party for use by the other Party to conduct activities pursuant to this Contribution Agreement, including Licensed Agents, Clinical Trial samples, cell lines, assays, viruses and vectors.

1.56. “Party” or “Parties” means, when used in singular, any signatory to the applicable agreement, as the context may require, and when used in plural, all signatories to the applicable agreement, and any permitted successor or assign thereto.

1.57. “Patents” means the rights and interests in and to issued patents and pending patent applications and similar government-issued rights (e.g., utility models) protecting inventions in any country, jurisdiction or region (including inventor’s certificates and utility models), including all priority applications, international applications, provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing.

1.58. “Person” means any individual, partnership, limited partnership, limited liability company, joint venture, syndicate, sole proprietorship, company or corporation with or without share capital, unincorporated association, trust, trustee, executor, administrator or other legal personal representative or governmental body.

1.59. “Price Approval” means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.60. “Product” means any pharmaceutical product, medical therapy, preparation, substance, or formulation comprising or employing, in whole or in part, a Licensed Agent.

1.61. “Prosecution and Maintenance” or “Prosecute and Maintain” means, with regard to a Patent, the preparing, filing, prosecuting and maintenance of such Patent, as well as handling re-examinations and reissues with respect to such Patent, together with the conduct of interferences, the defense of oppositions and other similar proceedings with respect to the particular Patent. For clarification, Prosecution and Maintenance or Prosecute and Maintain will not include any other enforcement actions taken with respect to a Patent.

1.62. “Regulatory Approval” means the technical, medical and scientific licenses, registrations, authorizations and approvals (including approvals of Approval Applications, supplements and amendments, pre- and post- approvals, and labeling approvals) of any Regulatory Authority, necessary for the research, Development, clinical testing, commercial manufacture, distribution, marketing, promotion, offer for sale, use, import, export or sale of a pharmaceutical product in a regulatory jurisdiction, including Marketing Approval.

1.63. “Regulatory Authority” means, with respect to a country in the Territory, any national (*e.g.*, the FDA), supra-national (*e.g.*, the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Price Approvals for pharmaceutical products in such country or countries.

1.64. “Sublicense” means, directly or indirectly, to sublicense, grant any other right with respect to, or agree not to assert, any licensed right under any Patent, Know-How or other Intellectual Property right. When used as a noun, “Sublicense” means any agreement to Sublicense.

1.65. “Sublicensee” means an Affiliate or Third Party, other than a distributor, to whom a licensee (or an Affiliate) sublicenses any of the rights granted to the licensee during the term of the applicable agreement.

1.66. “Target” means […***…]. Additional Targets may be included after the Effective Date solely by updating Schedule A in accordance with Section 7.13 of the Joint Venture Agreement.

1.67. “Targeting” means editing, engineering or modulating (including by means of gene knock-out, gene tagging, gene disruption, gene mutation, gene insertion, gene deletion, gene activation, gene silencing or gene knock-in) a Target or an Excluded Target or a Covered Target by means of hybridizing a guide RNA of the CRISPR/Cas Technology to such Target or Excluded Target or Covered Target.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.68. "Technology Term" means from the Effective Date until the Company is no longer Developing Licensed Agents or Products.

1.69. "Territory" means all the countries of the world.

1.70. "Third Party" means any Person other than Bayer or CRISPR or any Affiliate of either Party.

1.71. "Third Party Obligations" means any financial or non-financial encumbrances, obligations, restrictions, or limitations imposed by an In-License Agreement, including field or territory restrictions, covenants, diligence obligations or limitations pertaining to enforcement of intellectual property rights.

1.72. "Third-Party Target" means a Target that is the subject of a license or similar grant of rights pursuant to an agreement between CRISPR or one of its Affiliates and a Third-Party; provided, that such Target was licensed in accordance with the procedures set forth in Section 3.7 of the Joint Venture Agreement. For the avoidance of doubt, Third-Party Targets include all Excluded Targets.

1.73. "United States" or "U.S." means the fifty states of the United States of America and all of its territories and possessions and the District of Columbia.

1.74. The following terms shall have the meanings defined in the Section or Schedule indicated. Unless otherwise noted, the indicated Section or Schedule refers to the appropriate Section or Schedule of this Contribution Agreement.

Term	Where defined
Bayer	The first recital
Company	The first paragraph
CRISPR	The first paragraph
CRISPR AG	The first paragraph
CRISPR Inc.	The first paragraph
CRISPR UK	The first paragraph
Company Organization Documents	Section 3.2(b)(i) of the Joint Venture Agreement
Contribution Agreement	The first paragraph
Effective Date	The first paragraph
Excluded Covered Targets	Section 3.6 of the Joint Venture Agreement (i)
Exclusive License	Section 2.1.1
Excluded Target	Section 3.7 of the Joint Venture Agreement
HSR Act	Section 2.4
Information	Section 4.1 of the Intellectual Property Management Agreement
Interests	Section 3.3 of the Joint Venture Agreement
Intellectual Property Management Agreement	Section 3.2(b)(viii) of the Joint Venture Agreement

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Term	Where defined
Joint Venture Agreement	The first recital
Permitted COC Transfer	Section 11.3 of the Joint Venture Agreement
TRACR	The first paragraph
Transaction Document	Section 3.2 of the Joint Venture Agreement

ARTICLE 2.
LICENSE GRANTS

2.1. **License Grant to Company.**

2.1.1. **License Grant.** CRISPR hereby grants to Company an irrevocable (except as specified in the Joint Venture Agreement), worldwide, royalty-free, fully paid-up, sublicenseable (solely as permitted by Section 2.1.2), exclusive license under CRISPR's and its Affiliates' interest in and to the CRISPR Contributed Technology to Develop, Manufacture, have Manufactured, use, keep, sell, offer for sale, import, have imported export and Commercialize Licensed Agents and Products in the Fields in the Territory, excluding Licensed Agents and Products to the extent such agents or products are Targeting an Excluded Target or Covered Target (such license, the "**Exclusive License**").

2.1.2. **Sublicenses**. Provided the Company is licensing technology it Controls (other than the technology licensed to it under a Transaction Document) in the same transaction, subject to the terms of this Contribution Agreement, Company may grant sublicenses through multiple tiers of sublicense to one or more Sublicensees of any and all rights granted to Company by CRISPR under the Exclusive License. Each such Sublicense will be subject and subordinate to, and consistent with, the terms and conditions of this Contribution Agreement and will require such Sublicensee to comply with all applicable terms of this Contribution Agreement and all Third Party Obligations. Notwithstanding the grant of any Sublicense, Company shall remain primarily liable to CRISPR for the performance of all of Company's obligations under, and Company's compliance with all provisions of, this Contribution Agreement.

2.1.3. **License Conditions; Limitations**. Any rights and obligations hereunder, including the rights granted pursuant to any Exclusive License are subject to and limited by any applicable license from a Third Party within the CRISPR Contributed Technology.

2.1.4. **Financial Obligations for technology licensed from Third Parties**. To the extent that there are financial obligations associated with any technology licensed by CRISPR from Third Parties, the Party using such technology shall be responsible for such financial obligations; provided that, CRISPR shall provide prior notice of such financial obligations and shall be responsible for any financial obligations if prior notice is not provided.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.2. **Company License Grants.**

2.2.1. Except as specified in Article 16 of the Joint Venture Agreement, Company hereby grants to CRISPR AG and Tracr a perpetual, irrevocable, royalty-free, fully paid-up, worldwide, sublicenseable, license in and to the Company Crispr/Cas Technology, which right shall be exclusive, to develop, Manufacture, have Manufactured, use, keep, sell, offer for sale, import, have imported, export and Commercialize products outside of the Fields for Human Therapeutic Uses.

2.2.2. Except as specified in Article 16 of the Joint Venture Agreement, Company hereby grants to CRISPR AG and Tracr a perpetual, irrevocable, royalty-free, fully paid-up, worldwide, sublicenseable, license in and to the Company Non-Product Technology, which right shall be non-exclusive, to make, have made, use, sell, keep, offer for sale and import products.

2.2.3. Except as specified in Article 16 of the Joint Venture Agreement, Company hereby grants to CRISPR AG and Tracr a perpetual, irrevocable, royalty-free, fully paid-up, worldwide, sublicenseable, license in and to the Company Optimized Cas Technology, which right shall be exclusive, to develop, Manufacture, have Manufactured, use, keep, sell, offer for sale, import, have imported, export and Commercialize products outside of the Field for Human Therapeutic Uses.

2.3. **No Implied Licenses**. All rights in and to CRISPR's Intellectual Property not expressly licensed or assigned to Company under this Contribution Agreement are hereby retained by CRISPR or its Affiliates. All rights in and to any Company Intellectual Property not expressly licensed to CRISPR AG and Tracr under this Contribution Agreement, are hereby retained by Company or its Affiliates. Except as expressly provided in this Contribution Agreement, no Party will be deemed by estoppel or implication to have granted the other Party any licenses or other right with respect to any Intellectual Property.

2.4. **HSR**. Prior to granting a license to Patents hereunder, CRISPR shall provide the Company and Bayer with written notice of the same. In furtherance of granting licenses to Patents to the Company hereunder in the future, if required, prior to such Patents being licensed hereunder, CRISPR and Company shall, and Company and CRISPR shall work with Bayer to, (a) take promptly all actions necessary to prepare any filings, or cause their "ultimate parent entities" as that term is defined in the Hart-Scott-Rodino Antitrust Improvement Act of 1976 as amended (the "HSR Act") or relevant regulations to promptly prepare any filings required of any

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

of them under the HSR Act, which shall each be filed with the appropriate Governmental Authorities within […***…] Business Days of the date of the notice, and each such filing shall request the early termination of the waiting period required by the HSR Act; (b) use commercially reasonable efforts to comply at the earliest practicable date with any request for additional information received by any of them from the Federal Trade Commission or the Antitrust Division of the Department of Justice or any other Governmental Authority with authority regarding antitrust or competition matters; and (c) reasonably cooperate with each other in connection with the preparation and making of any such filings and the clearance of the contemplated transactions under antitrust or competition Law. […***…]. Each Party agrees to notify the other Party promptly of any material communication from a Governmental Authority regarding the contemplated transactions. Without limiting the generality of the foregoing, each Party shall provide the other Party (or its representatives) upon request copies of all correspondence and written productions between such Party and any Governmental Authority relating to the contemplated transactions. The Parties may, as they deem advisable, designate any competitively sensitive materials provided to the other Party as "outside counsel only." Such materials and the information contained therein shall be given only to outside counsel of the recipient and will not be disclosed by such outside counsel to employees, officers, or directors of the recipient without the advance consent of the Party providing such materials. Subject to applicable Law, the Parties will consult and cooperate with each other in connection with any analyses, appearances, presentations, memoranda, briefs, arguments, and proposals made or submitted to any Governmental Authority regarding the contemplated transactions by or on behalf of any Party.

2.5. If the filings under the HSR Act are required, the effective date of the license of any applicable Patents shall be delayed until any applicable waiting periods (and any extensions thereof) under the HSR Act have expired or otherwise been terminated.

ARTICLE 3.
CONSIDERATION

3.1. **Consideration.** As partial consideration for the license granted pursuant to Section 2.1, the Company shall pay to CRISPR a fee in the aggregate amount of up to US $35,000,000 in accordance with the terms set forth in Section 3.2 (b)(ii) of the Joint Venture Agreement.

ARTICLE 4.
INTELLECTUAL PROPERTY MATTERS

4.1. **Intellectual Property Matters.** Subject to the rights and licenses granted herein, the rights and obligations of the Parties with respect to the ownership of, use, preparation, prosecution, maintenance and enforcements of Know-How and Patents arising under the activities performed in the exercise of rights licensed or retained hereunder shall be governed by the Intellectual Property Management Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.2. **No Other Rights.** Except as otherwise expressly provided in this Contribution Agreement, under no circumstances will a Party or any of its Affiliates, as a result of this Contribution Agreement, obtain any ownership interest, license or other right in or to any Know-How, Patents or other Intellectual Property of the other Party, including tangible or intangible items owned, controlled or developed by the other Party, or provided by the other Party to the receiving Party at any time, pursuant to this Contribution Agreement. Neither Party nor any of its Affiliates will use or practice any Know-How, Materials or Patents licensed or provided to such Party or any of its Affiliates outside the scope of or otherwise not in compliance with the rights and licenses granted to such Party and its Affiliates under this Contribution Agreement, except to the extent an unlicensed Third Party could use such CRISPR Contributed Technology or materials.

4.3. **Unauthorized Use of CRISPR Contributed Technology.** Company shall institute reasonable procedures to prevent CRISPR Contributed Technology from being used for anything outside of the Field in the Territory. After receiving notice from CRISPR alleging a specific breach, Company will investigate (with CRISPR having the right to participate in such investigation) such use of CRISPR Contributed Technology, and if Company identifies any such unauthorized use of CRISPR Contributed Technology, Company shall immediately cease such use and implement reasonable procedures to prevent such unauthorized use of CRISPR Contributed Technology in the future.

4.4. **CRISPR Contributed Technology that is licensed by CRISPR from a Third Party**. With regard to CRISPR Background Technology that is licensed by CRISPR from a Third Party, and which the Company has notified CRISPR it wishes to use in connection with Development of a Product, CRISPR shall use reasonable efforts to obtain the right to further license such Technology to the Company and for the Company to license such Technology to Bayer if it opts into a Licensed Product or to a Third Party that acquires a license to a Licensed Product if such rights are necessary for the commercialization of the Licensed Product. Nothing in this Section will require CRISPR to incur any additional cost or expense to obtain such rights or to amend any existing license except to the extent of acquiring such rights as described in this Section. If additional costs or expenses are necessary to obtain such rights, the Parties shall discuss in good faith the payment of such costs or expenses.

ARTICLE 5.
REPRESENTATIONS AND WARRANTIES

5.1. **Representations and Warranties of Company**. Company hereby represents and warrants to CRISPR, as of the Effective Date, that:

5.1.1. Company is a limited liability partnership, duly incorporated and validly existing under the laws of England and Wales;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.1.2. Company (a) has the requisite power and authority and the legal right to enter into this Contribution Agreement and to perform its obligations hereunder and (b) has taken all requisite action on its part to authorize the execution and delivery of this Contribution Agreement and the performance of its obligations hereunder;

5.1.3. Company has the requisite resources and expertise to perform its obligations hereunder;

5.1.4. the execution, delivery and performance of this Contribution Agreement by Company (a) will constitute legal, valid, binding and enforceable obligations on it and (b) will not constitute a default under or conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it is bound, or violate any law or regulation of any court, governmental body or administrative or other agency having jurisdiction over Company; and

5.1.5. Company has obtained all necessary consents, approvals and authorizations of all Governmental Authorities and other Persons or entities required to be obtained by it in connection with the execution and delivery of this Contribution Agreement.

5.2. **Representations and Warranties of CRISPR**. Each of the CRISPR entities, jointly and severally, hereby represents and warrants to Company, as of the Effective Date, that, except as otherwise set forth on Schedule 5.2:

5.2.1. Each of CRISPR AG, CRISPR Inc., CRISPR UK and TRACR are duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization and has full corporate power and authority to enter into this Contribution Agreement and to carry out the provisions hereof;

5.2.2. Each of CRISPR AG, CRISPR Inc., CRISPR UK and TRACR (a) has the requisite power and authority and the legal right to enter into this Contribution Agreement and to perform its obligations hereunder and (b) has taken all requisite action on its part to authorize the execution and delivery of this Contribution Agreement and the performance of its obligations hereunder;

5.2.3. this Contribution Agreement has been duly executed and delivered on behalf of CRISPR, and constitutes a legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, except to the extent that the enforceability may be affected by bankruptcy, insolvency, and other laws of general application affecting the enforcement of creditors' rights and by general principles of equity that may limit the availability of equitable remedies;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.2.4. the execution, delivery and performance of this Contribution Agreement by CRISPR will not constitute a default under or conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it is bound, or violate any Law or regulation of any court, governmental body or administrative or other agency having jurisdiction over it;

5.2.5. CRISPR has obtained all necessary consents, approvals and authorizations of all Governmental Authorities and other Persons or entities required to be obtained by CRISPR in connection with the execution and delivery of this Contribution Agreement;

5.2.6. CRISPR is the sole and exclusive owner or exclusive licensee of the CRISPR Contributed Technology, all of which is free and clear of any liens, charges and encumbrances, and, as of the Effective Date, neither any license granted by CRISPR to any Third Party, nor any license granted by any Third Party to CRISPR conflicts with the license grants to Company hereunder and CRISPR is entitled to grant all rights and licenses (or sublicenses, as the case may be) under such CRISPR Contributed Technology it purports to grant to Company under this Contribution Agreement;

5.2.7. Schedule 5.2.7 sets forth a true, correct and complete list of (i) all CRISPR Platform Technology Patents or CRISPR Background Patents as of the Effective Date, indicating for each such patent (a) whether it is the subject of an application, certificate, filing, registration or other document issued, filed with, or recorded by any governmental entity, and specifying, where applicable, the jurisdiction in which such Patents Controlled by CRISPR have been issued or registered or in which jurisdiction an application for such issuance and registration has been filed, including, as applicable, the respective registration and application numbers, the names of all registered owners or applicants, and the filing and expiration dates thereof , (b) whether each such Patent is a CRISPR Platform Technology Patent or a CRISPR Background Patent, and (c) whether such Patent is owned by CRISPR or licensed by CRISPR from a Third Party and if so, identifies the licensor or sublicensor from which the Patent is licensed, and (ii) all material agreements relating to CRISPR Contributed Technology, including but not limited to, licenses, royalty-bearing agreements, material transfer agreements, manufacturing agreements, service agreements, pre-clinical/clinical trial agreements, research agreements, joint venture agreements, and collaboration agreements;

5.2.8. the CRISPR Contributed Technology constitutes all of the Patents and Know-How Controlled by CRISPR that are necessary to Develop, Manufacture or Commercialize Licensed Agents and Products in the Field as contemplated under the Joint Venture Agreement;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.2.9. CRISPR has independently developed all CRISPR Contributed Technology or otherwise has a valid right to use, and to permit Company and Company's Sublicensees to use, the CRISPR Contributed Technology for all permitted purposes under this Contribution Agreement;

5.2.10. the CRISPR Background Know-How and CRISPR Platform Technology Know-How is free and clear of liens, charges or encumbrances other than licenses granted to Third Parties that are not inconsistent with the rights and licenses granted to Company hereunder;

5.2.11. No Third Party has challenged the extent, validity or enforceability of CRISPR Platform Technology Patents and the CRISPR Background Patents (including by way of example through the institution or written threat of institution of interference, nullity or similar invalidity proceedings before the United States Patent and Trademark Office or any analogous foreign Governmental Authority), and to CRISPR's Knowledge (a) no Third Party is infringing any such Patents and (b) such Patents are, or, upon issuance, will be, valid and enforceable patents.

5.2.12. CRISPR has not challenged any Third Party Intellectual Property by filing any interference, derivation, reexamination, inter partes review, post grant challenge, cancellation, nullity action, Third Party observations, or opposition proceeding;

5.2.13. it has complied with all applicable Laws, including any disclosure requirements of the United States Patent and Trademark Office or any analogous foreign Governmental Authority, in connection with the Prosecution and Maintenance of the CRISPR Platform Technology Patents and CRISPR Background Patents and has timely paid all filing and renewal fees payable with respect to any such Patents for which it controls Prosecution and Maintenance;

5.2.14. there are no contracts which require the payment of royalties by CRISPR or its Affiliates with respect to the use of the CRISPR Platform Technology Patents CRISPR Platform Technology Know-How, CRISPR Background Know-How and CRISPR Background Patents. For each contract disclosed on Schedule 5.2.14, the Schedule 5.2.14 sets forth the date on which such royalty was first paid, the royalty rate being paid by CRISPR as of the Effective Date, and the royalty term;

5.2.15. it has obtained assignments from the inventors of all inventorship rights relating to the CRISPR Platform Technology Patents and CRISPR Background Patents that it owns, and all such assignments of inventorship rights relating to such Patents are valid and enforceable and properly recorded;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.2.16. except for CRISPR's In-License Agreements, there is no agreement between CRISPR (or any of its Affiliates) and any Third Party pursuant to which CRISPR has acquired Control of any of the CRISPR Contributed Technology, and no Third Party has any right, title or interest in or to, or any license under, any of the CRISPR Contributed Technology. All of CRISPR's In-License Agreements are in full force and effect and have not been modified or amended (except for amendments provided to Company prior to the Effective Date). Neither CRISPR nor, to any CRISPR entity's Knowledge, the Third Party licensor in any of CRISPR's In-License Agreements is in default with respect to a material obligation under any of such In-License Agreements, and neither such party has claimed or has grounds upon which to claim that the other party is in default with respect to a material obligation under, any of CRISPR's In-License Agreements;

5.2.17. CRISPR and its Affiliates have taken commercially reasonable measures consistent with industry practices to protect the secrecy, confidentiality and value of all CRISPR Background Know-How and CRISPR Platform Technology Know-How that constitutes trade secrets under applicable Law (including requiring all employees, consultants and independent contractors to execute binding and enforceable agreements requiring all such employees, consultants and independent contractors to maintain the confidentiality of such CRISPR Background Know-How and CRISPR Platform Technology Know-How) and, to CRISPR's Knowledge, such CRISPR Background Know-How and CRISPR Platform Technology Know-How has not been used, disclosed to or discovered by any Third Party except pursuant to such confidentiality agreements and there has not been a breach by any party to such confidentiality agreements;

5.2.18. no CRISPR Contributed Technology is subject to any funding agreement with any government or governmental agency and CRISPR is not subject to any domestic manufacturing requirement and is free to manufacture any goods for its business as contemplated in any country;

5.2.19. to each CRISPR entity's Knowledge, the Development, Manufacture, use, sale, offer for sale, supply or importation by CRISPR or Company (or their respective Affiliates or Sublicensees) of a Licensed Agent or Product does not and will not infringe any issued patent of any Third Party or, if and when issued, any claim within any patent application of any Third Party or misappropriate any Third Party technology;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.2.20. CRISPR has not filed or made any oral or written claim against any Person alleging any infringement, misappropriation, or other violation of any CRISPR Contributed Technology;

5.2.21. there are no judgments or settlements against or owed by CRISPR, pending or, to CRISPR's Knowledge threatened claims or litigation, in either case relating to the CRISPR Contributed Technology;

5.2.22. there is no action, claim, demand, suit, proceeding, arbitration, grievance, citation, summons, subpoena, inquiry or investigation of any nature, civil, criminal, regulatory or otherwise, in law or in equity, pending or, to CRISPR's Knowledge, threatened against CRISPR, any of its Affiliates or any Third Party, in each case in connection with the CRISPR Contributed Technology or relating to the transactions contemplated by this Contribution Agreement; and

5.2.23. CRISPR has not employed (and, to such CRISPR entity's Knowledge, has not used a contractor or consultant that has employed) any Person debarred by the FDA (or subject to a similar sanction of EMA or foreign equivalent), or any Person that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMA or foreign equivalent), in any capacity in connection with this Contribution Agreement.

5.3. **CRISPR Covenants**. Each of the CRISPR entities, jointly and severally, hereby covenants to Company that, except as expressly permitted under this Contribution Agreement:

5.3.1. It will not amend, modify or terminate any of CRISPR's In-License Agreements in a manner that would have a material adverse effect on Company's rights hereunder without first obtaining Company's consent; and

5.3.2. It will not enter into any new agreement or other obligation with any Third Party, or amend an existing agreement with a Third Party, in each case that would have a material adverse effect on Company's rights hereunder without first obtaining Company's consent.

5.4. **Consequence of Breach of Representations and Warranties.** In addition to any consequences as specified in Section 6.2, CRISPR acknowledges and agrees that Company would be damaged irreparably in the event CRISPR breaches any of the provisions of Sections 5.2 or 5.3. Accordingly, CRISPR agrees that, without posting a bond or other undertaking, Company may seek an injunction or injunctions to prevent breaches or violations or specific performance of the provisions of Sections 5.2 or 5.3 and to enforce specifically such Sections and the terms and provisions thereof in any Action instituted in any court hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any Action between the Parties arising in whole or in part under or in connection with Sections 5.2 and 5.3. An Action for specific performance as provided herein shall not preclude a Party from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Contribution Agreement. CRISPR further agrees that, in the event of any Action for an injunction or specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate.

5.5. **Disclaimer**. Except as otherwise expressly set forth in this Contribution Agreement, neither Party nor its Affiliates makes any representation or extends any warranty of any kind, either express or implied, including any warranty of merchantability or fitness for a particular purpose. Company and CRISPR understand that each Product is the subject of ongoing research and Development and that neither Party can assure the safety, usefulness or commercial or technical viability of any Product.

ARTICLE 6.
TERM; TERMINATION

6.1. **Contribution Agreement Term; Expiration**. This Contribution Agreement is effective as of the Effective Date and shall terminate upon termination of the Joint Venture Agreement.

6.2. **Consequences of Expiration or Termination of the Contribution Agreement**.

6.2.1. If this Contribution Agreement terminates in accordance with Section 6.1, the terms of Section 16.2 of the Joint Venture Agreement shall determine the consequences of termination of the Contribution Agreement.

6.2.2. The following provisions of this Contribution Agreement will survive termination of this Contribution Agreement: 5.5 and Articles 7, 8, 9 and 10.

ARTICLE 7.
CONFIDENTIALITY

7.1. **Confidentiality.** All Information under this Contribution Agreement shall be governed by the Confidentiality provisions specified in Article 4 of the Intellectual Property Management Agreement and such Article 4 is hereby incorporated by reference.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 8.
DISPUTE RESOLUTION

8.1. **Referral to Heads of Businesses.** Unless otherwise specified in this Contribution Agreement, the Parties hereby agree that to the extent reasonably practicable and would not materially prejudice a Party, controversies or claims arising out of or relating to this Contribution Agreement or the interpretation, performance, breach, termination or validity thereof shall first be referred to CRISPR's Chief Executive Officer and Company's Chief Executive Officer for resolution. If these individuals are unable to agree upon a resolution within thirty (30) days after referral of the matter to them, then either Party may pursue any available remedy hereunder, at law or in equity.

8.2. **Attorneys' Fees.** If any action at law or in equity (including, arbitration) is necessary to enforce or interpret the terms of this Contribution Agreement, including claims for fraud and/or fraudulent inducement, the prevailing Party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other relief to which such Party may be entitled.

8.3. **Jurisdiction.** Unless otherwise specified in this Contribution Agreement, each Party to this Contribution Agreement, by its execution hereof, unless otherwise prohibited by applicable Law (i) hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any action among the Parties, (ii) hereby waives and agrees not to assert, by way of motion, as a defense or otherwise, in any such action, any claim that it is not subject personally to the jurisdiction of the above-named courts, that any such action brought in one of the above-named courts should be dismissed on grounds of forum non conveniens, should be transferred or removed to any court other than one of the above-named courts, or should be stayed by reason of the pendency of some other proceeding in any court other than one of the above-named courts, or that this Contribution Agreement or the subject matter hereof may not be enforced in or by such court and (iii) to the extent that an action can be commenced in a court, agrees not to commence any such action in any court other than before one of the above-named courts. Notwithstanding the previous sentence, a Party hereto may commence any action in a court other than the above-named courts for the purpose of enforcing an order or judgment issued by one of the above-named courts.

8.4. **Venue**. No Party hereto will assert that venue should properly lie in any other location within the selected jurisdiction.

8.5. **Specific Performance**. Each of the Parties hereto acknowledges and agrees that the other Party would be damaged irreparably in the event any of the provisions of this Contribution Agreement are not performed in accordance with their specific terms or otherwise are breached or violated. Accordingly, each of the Parties hereto agrees that, without posting a bond or other undertaking, the other Party may seek

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(and obtain) an injunction or injunctions to prevent breaches or violations of the provisions of this Contribution Agreement and to enforce specifically this Contribution Agreement and the terms and provisions hereof in any Action instituted in any court specified herein. An Action for specific performance as provided herein shall not preclude a Party hereto from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Contribution Agreement. Each Party hereto further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate provided, however, each Party hereto also agrees that any Party hereto can assert any other defense it may have other than the defense of adequate remedy at law.

8.6. **Governing Law.** The Parties agree that this Contribution Agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

ARTICLE 9.
ASSIGNMENT

9.1. **Assignment**. Except as permitted under the Joint Venture Agreement (including a Permitted COC Transfer complying with Article 11 of the Joint Venture Agreement) or this Contribution Agreement, (a) any of the rights, interests and obligations created herein shall not be transferred or assigned to any Third Party and such rights and interests shall not inure to the benefit of any other Person, including any trustee in bankruptcy, receiver or other successor of either of the Parties, whether by operation of Law, sub-license, transfer of the assets, merger, liquidation or otherwise, without the prior written consent of the other Party, and (b) any purported or actual transfer or assignment of any such rights, interests or obligations without the prior written consent of the other Party is and shall be null and void ab initio; provided, however, that either of the Parties may, without consent of the other Party, assign its respective rights and obligations under this Contribution Agreement to a successor company of such Party as the result of an internal corporate reorganization to a wholly-owned Affiliate of such Party; provided that the assigning Party shall remain primarily liable hereunder. In addition to the requirements of the prior sentence, if this Contribution Agreement is assigned to a Third Party by a Party, as a condition to such assignment, all other Transaction Documents to which such Party is a party shall concurrently be assigned to such Third Party and all Interests of such Party and its Affiliates are to be transferred to such Third Party.

ARTICLE 10.
NOTICES AND MISCELLANEOUS

10.1. **Form of Valid Notice**.

(a) All notices or other communications provided for in this Contribution Agreement or that may otherwise be required must be in writing, clearly legible and shall be sent:

(i) by an internationally recognized courier service with acknowledgment of receipt, properly addressed, and postage pre-paid;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(ii) by e-mail; or

(iii) by personal delivery.

(b) Any notice sent by one of the means described in Section 10.1(a) will be deemed received:

(i) if sent by an internationally recognized courier service, three (3) Business Days after deposit with such courier service,

(ii) if sent by e-mail, when there is effective acknowledgment of receipt, or

(iii) if delivered personally, when delivered.

10.2. **Persons and Addresses**. Except as may otherwise be provided, all notices or other communications provided for in this Contribution Agreement or that a Party may otherwise be required to give to the other Party shall be sent as provided in Section 10.1 to the following persons at the addresses stated herein or at such other address as either Party may specify by notice to the other Party given in accordance with this Article 10:

To CRISPR:

CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel
Switzerland
Attention: Chief Executive Officer and Chief Legal Officer

and

CRISPR Therapeutics Ltd.
85 Tottenham Court Road
London W1T 4TQ
United Kingdom
Attention: Chief Legal Officer

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

With a copy to:	Goodwin Procter LLP 53 State Street Boston, MA 02109 USA Attention: Mitchell S. Bloom and Robert E. Puopolo and Bayer Aktiengesellschaft Kaiser-Wilhelm-Allee 51368 Leverkusen Germany Attention: Dr. Axel Bouchon and Dr. Jan Heinemann Norton Rose Fulbright US LLP 801 Pennsylvania Avenue, N.W. Washington, D.C. 20004-2623 USA Attention: Marilyn Mooney
To Company:	VIVR LLP c/o Taylor Wessing 5 New Street Square London EC4A 3TW Attn: Andrew Davis
With a copy to:	Taylor Wessing 5 New Street Square London EC4A 3TW Attn: Andrew Davis

Solely for purposes of enforcing its rights to receive copies of notices to CRISPR under this Section 10.2, Bayer shall be an express Third Party beneficiary of Section 10.2 of this Contribution Agreement.

10.3. **Miscellaneous.**

(a) No amendment, modification or addition to any provision of this Contribution Agreement shall be valid unless the same shall be in writing and approved by the signature of each Party.

(b) The terms and conditions of this Contribution Agreement shall be interpreted according to the common sense meaning intended by the Parties and in accordance with the principles of good faith and fair dealing.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(c) The Parties have participated jointly in the negotiation and drafting of this Contribution Agreement. In the event an ambiguity or question of intent or interpretation arises, this Contribution Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Contribution Agreement. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise.

(d) Every day commences at 12:00 a.m. and ends at 11:59 p.m. (midnight) New York time. Any reference in this Contribution Agreement to a number of days "in" which an action or notice is to be taken or given, shall be interpreted in such way that the term commences the day after the date taken as reference and that the action or notice shall be validly taken or given at the last day. Any reference in this Contribution Agreement to a "day" or a number of "days" without explicit qualification of "business" shall be interpreted as a reference to a calendar day or number of calendar days. If any action or notice is to be taken or given on or by a particular calendar day, and such calendar day is not a Business Day, then such action or notice shall be deferred until, or may be taken or given on, the next Business Day.

(e) In the event either Party becomes a debtor under Title 11 of the U.S. Code, this Contribution Agreement shall be deemed to be, for purposes of Section 365(n) of Title 11, a license to "Intellectual Property" as defined therein and the other Party and its Affiliates, and each of their successors and assigns as licensees shall have the rights and elections as specified in Section 365(n) of Title 11 of the U.S. Code. Without limiting the foregoing, upon termination of this Contribution Agreement by a trustee or executor of either Party which has rejected this Contribution Agreement pursuant to any non-contractual rights afforded to it by applicable bankruptcy law and/or a U.S. or foreign bankruptcy court or other tribunal of competent jurisdiction, all rights and licenses herein granted to the other Party shall nonetheless continue in full force and effect in accordance with the terms of this Contribution Agreement. The debtor Party shall take such actions to provide similar protections for the non-debtor Party pursuant to similar laws in other jurisdictions.

(f) This Contribution Agreement shall constitute the entire agreement and understanding between the Parties and shall supersede and nullify any and all previous agreements, negotiations, commitments, undertakings and declarations

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

heretofore made between the Parties in respect of the subject matter of this Contribution Agreement unless expressly provided for herein or in any schedule attached hereto and any other agreement entered in connection herewith.

(g) Words importing gender include all genders.

(h) The division of this Contribution Agreement into articles, sections and clauses, the inclusion of a table of contents and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Contribution Agreement.

(i) Each provision contained in this Contribution Agreement is distinct and severable. A declaration of invalidity, illegality or unenforceability of any provision or a part thereof by an arbitrator, a court or a tribunal of competent jurisdiction shall not affect the validity or enforceability of any other provision of this Contribution Agreement. To the extent permitted by law, if any provision of this Contribution Agreement, or the application thereof to any Person or any circumstance, is invalid or unenforceable, (i) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (ii) the remainder of this Contribution Agreement and the application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application thereof, in any other jurisdiction.

(j) Any mistaken reference to Articles, clauses, Sections, Schedules or paragraphs of this Contribution Agreement shall be amended according to common sense and good faith rules. When a reference is made in this Contribution Agreement to an Article, clause, Section, Schedule or paragraph, such reference will be to an Article, clause, Section, Schedule or paragraph unless otherwise indicated.

(k) No waiver by any Party of any default, misrepresentation or breach of warranty or covenant hereunder, whether intentional or not, shall be deemed to extend to any prior or subsequent default, misrepresentation or breach of warranty or covenant hereunder or affect in any way any rights arising by virtue of any prior or subsequent such occurrence. No single or partial exercise of any right, power or privilege shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege unless explicitly provided for in this Contribution Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(l) Subject to the terms of and restrictions in this Contribution Agreement, the reference to any Party shall include its successors or permitted transferees that have legally acquired its rights, obligations and/or duties. This Contribution Agreement shall be binding upon and inure solely to the benefit of the Parties and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other Person any legal or equitable right, benefit or remedy of any nature whatsoever, unless otherwise specified therein.

(m) EACH OF THE PARTIES HEREBY WAIVES TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY WITH RESPECT TO ANY ACTION OR LIABILITY DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS CONTRIBUTION AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS CONTRIBUTION AGREEMENT. EACH OF THE PARTIES HEREBY (A) CERTIFIES THAT NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF ANY SUCH ACTION OR LIABILITY, SEEK TO ENFORCE THE FOREGOING WAIVER; AND (B) ACKNOWLEDGES THAT IT HAS BEEN INDUCED TO ENTER INTO THIS CONTRIBUTION AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS CONTRIBUTION AGREEMENT, AS APPLICABLE, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 10.3(m).

(n) This Contribution Agreement may be executed and delivered (including by means of electronic transmission, such as by electronic mail in ".pdf" form) in two or more counterparts, and by the different Parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement.

(o) Whenever the words "include," "includes" or "including" are used in this Contribution Agreement, they will be deemed to be followed by the words "without limitation." The words "hereof," "herein" and "hereunder" and words of similar import when used in this Contribution Agreement will refer to this Contribution Agreement as a whole and not to any particular provision of this Contribution Agreement. All terms used herein with initial

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

capital letters have the meanings ascribed to them herein and all terms defined in this Contribution Agreement will have such defined meanings when used in any certificate or other document made or delivered pursuant hereto unless otherwise defined therein. The definitions contained in this Contribution Agreement are applicable to the singular as well as the plural forms of such terms. Any agreement, instrument or statute defined or referred to herein, or in any agreement or instrument that is referred to herein, means such agreement, instrument or statute as from time to time amended, modified or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The use of "or" is not intended to be exclusive unless expressly indicated otherwise. References to sums of money are expressed in lawful currency of the United States (U.S. dollars), unless the Parties otherwise agree in writing to use a different currency.

(p) Both Parties are independent contractors under this Contribution Agreement. Nothing herein contained will be deemed to create an employment, agency, joint venture or partnership relationship between the Parties hereto or any of their agents or employees, or any other legal arrangement that would impose liability upon one Party for the act or failure to act of the other Party, except to the extent specifically agreed to in a written agreement signed by the Parties. Neither Party will have any express or implied power to enter into any contracts or commitments or to incur any liabilities in the name of, or on behalf of, the other Party, or to bind the other Party in any respect whatsoever.

[SIGNATURE PAGE FOLLOWS]

* - * - * - *

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the Parties have caused this Contribution Agreement to be executed by their representatives thereunto duly authorized as of the Effective Date.

VIVR LLP

By: /s/ Axel Bouchon

Name: Axel Bouchon

Title: General Manager

CRISPR THERAPEUTICS AG

By: /s/ Rodger Novak

Name: Rodger Novak

Title: CEO

CRISPR THERAPEUTICS, INC.

By: /s/ Rodger Novak

Name: Rodger Novak

Title: CEO

CRISPR THERAPEUTICS LIMITED

By: /s/ Rodger Novak

Name: Rodger Novak

Title: CEO

TRACR HEMATOLOGY LTD

By: /s/ Rodger Novak

Name: Rodger Novak

Title: CEO

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule 5.2

CRISPR Disclosures

5.2.2.

See Schedule 5.2.7 regarding […***…] *(as defined in 5.2.7).*

5.2.4.

See Schedule 5.2.7 regarding […***…].

5.2.5.

See Schedule 5.2.7 regarding […***…].

5.2.6.

See Schedule 5.2.7 regarding […***…]*; and reference to cases that are licensed in Section A.*

5.2.7.

CRISPR Platform Technology Patents

A. CRISPR Platform Technology Patents Licensed from Emmanuelle Charpentier

Foundational patent applications related to Crispr-Cas9 gene editing technologies licensed to CRISPR by Emmanuelle Charpentier:

Serial #	*Filing Date*	*Country/Jurisdiction*
61/652,086	*25 May 2012*	*United States*
61/716,256	*19 Oct 2012*	*United States*
61/757,640	*28 Jan 2013*	*United States*

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

61/765,576	*15 Feb 2013*	*United States*
13/842,859	*15 Mar 2013*	*United States*
14/403,475	*14 Nov 2014*	*United States*
14/685,502	*13 Apr 2015*	*United States*
14/685,504	*13 Apr 2015*	*United States*
14/685,513	*13 Apr 2015*	*United States*
14/685,514	*13 Apr 2015*	*United States*
14/685,516	*13 Apr 2015*	*United States*
PCT/US2013/032589	*15 Mar 2013*	*(International)*
140780	*15 Mar 2013*	*Algeria*
2013266968	*15 Mar 2013*	*Australia*
BR1120140299441-0	*15 Mar 2013*	*Brazil*
2872241	*15 Mar 2013*	*Canada*
2014-03208	*15 Mar 2013*	*Chile*
2013800389206	*15 Mar 2013*	*China*
14-259531	*15 Mar 2013*	*Colombia*
014-0538	*15 Mar 2013*	*Costa Rica*
IEPI-2014-28704	*15 Mar 2013*	*Ecuador*
PCT1887/2014	*15 Mar 2013*	*Egypt*
201401319	*15 Mar 2013*	*Eurasia*
13793997.1	*15 Mar 2013*	*European Patent Office*

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

13674/01-14	*15 Mar 2013*	*Georgia*
1420270.9	*15 Mar 2013*	*Great Britain / UK*
2995/KOLNP/2014	*15 Mar 2013*	*India*
P00201407783	*15 Mar 2013*	*Indonesia*
235461	*15 Mar 2013*	*Israel*
2015514015	*15 Mar 2013*	*Japan*
KE/P/2014/002178	*15 Mar 2013*	*Kenya*
10-2014-7036096	*15 Mar 2013*	*Korea, South*
4959/2014	*15 Mar 2013*	*Libya*
37663	*15 Mar 2013*	*Morocco*
MX/a/2014/014477	*15 Mar 2013*	*Mexico*
PI 2014003102	*15 Mar 2013*	*Malaysia*
701326	*15 Mar 2013*	*New Zealand*
OM/P/2014/00268	*15 Mar 2013*	*Oman*
90441-01	*15 Mar 2013*	*Panama*
002211-2014/DIN	*15 Mar 2013*	*Peru*
1-2014-502574	*15 Mar 2013*	*Philippines*
QA/201411/00400	*15 Mar 2013*	*Qatar*
11201407702X	*15 Mar 2013*	*Singapore*
2014/07881	*15 Mar 2013*	*South Africa*
2014120156	*15 Mar 2013*	*Syria*
1401007063	*15 Mar 2013*	*Thailand*

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2014/0493	*15 Mar 2013*	*Tunisia*
a201413835	*15 Mar 2013*	*Ukraine*
P1296/14	*15 Mar 2013*	*United Arab Emirates*
IAP20140559	*15 Mar 2013*	*Uzbekistan*
1-2014-04335	*15 Mar 2013*	*Vietnam*

The named applicant co-owners of the foregoing patent applications are Dr. Emmanuelle Charpentier, the Regents of the University of California and the University of Vienna.

Emmanuelle Charpentier has licensed her rights in the inventions to CRISPR AG and TRACR Hematology Ltd. for the commercialisation of therapeutic products; and has retained the nontransferable right, without the right to license or sublicense, to use the inventions for her own research purposes and in research collaborations.

[…***…].

[…***…].

B. CRISPR Platform Technology Patents Filed by the Company

The following cases represent CRISPR Platform Technology Patents filed by the Company that relate to various improvements and uses of Crispr-Cas9 gene editing.

61/905,835	*18 Nov 2013*	*United States*
PCT/EP2014/074813	*17 Nov 2014*	*International*
62/119,774	*23 Feb 2015*	*United States*

CRISPR Background Technology Patents

The patents listed on the attached Appendix 1 to this Schedule are patents related to […***…]

Material Agreements Relating to Contributed Technology

Material agreements relating to CXX Contributed Technology:

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

- *License Agreement of April 15, 2014 by and between Emmanuelle Marie Charpentier and Crispr Therapeutics AG*
- *License Agreement of April 15, 2014 by and between Emmanuelle Marie Charpentier and Tracr Hematology Ltd*
- *Patent Assignment Agreement of November 7, 2014 by and among Emmanuelle Marie Charpentier, The University of Vienna, Ines Fonfara and Crispr Therapeutics AG*
- *Non-Exclusive License Agreement of November 23, 2014 between Childrens Medical Center Corporation and Tracr Hematology Ltd*
- *Non-Exclusive License Agreement of July 1, 2015 between Georgia Tech Research Corporation and Crispr Therapeutics AG*

5.2.9

See Schedule 5.2.7 regarding Certain Co-Owner Consents ex-US.

5.2.11

The Charpentier-licensed IP identified in Schedule 5.2.7 has been the subject of third party observations filed in the following patent offices: European Patent Office, the UK Intellectual Property Office, the US Patent and Trademark Office and the World Intellectual Property Office ("Third Party Observations").

The Broad Institute is the applicant or owner of a series of competing cases claiming Crispr-Cas9 gene editing (which cases generally claim priority to one or more provisional applications identifying at least Feng Zhang as an inventor, including without limitation U.S. provisional patent application 61/736,527, dated December 12, 2012, as well as foreign counterparts thereof). The Broad Institute has filed Information Disclosure Statements in its various U.S. cases attacking the Charpentier-licensed IP, and it and/or related entities are considered to be among the parties filing third party observations.

The Charpentier-UC applicants have filed a Suggestion of Interference Pursuant to 37 C.F.R. § 41.202 with the U.S. Patent & Trademark Office in connection with numerous U.S. patents issued to the Broad Institute (the "Potential Interference"). The Suggestion of Interference was filed in U.S. Serial No. 13/842,859 on April 13, 2015.

CRISPR has not, of record, filed any third party observations against adverse applicants ("TPOs Against Others"); […***…].

CRISPR has filed an opposition ("Opposition") against the following grant to the Broad Institute in the European Patent Office: EP B1 277 1468.

The patent applications listed below and counterparts thereof generally include claims to Crispr-Cas9 gene editing with priority applications filed in 2012, and there have since been numerous additional patent applications claiming variations of Crispr-Cas gene editing and various uses of Crispr-Cas gene editing for the development of potential products filed after 2012 that are readily identifiable by searching patent databases for Crispr-Cas gene editing, which Third Party applicants, applications or patents (individually and collectively "Third Party IP") could become involved in challenges related to the Licensed Technology and/or to products to

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

be developed pursuant to such technology (together with the Third Party Observations and the Potential Interference referred to in the preceding paragraphs being individually and collectively the "Third Party Matters"):

- *Vilnius PCT/LT2013/000006 filed 15 Mar 2013 (WO 2013/141680) and PCT/US2013/033106 filed 20 Mar 2013 (WO 2013/142578)*

First priority filing 20 Mar 2012

- *Toolgen PCT/KR2013/009488 filed 23 Oct 2013 (WO/2014/065596)*

First priority filing 23 Oct 2012

- *Sigma PCT/US2013/073307 filed 05 Dec 2013 (WO/2014/089290)*

First priority filing 6 Dec 2012

- *Broad PCT/US2013/074743 (WO/2014/093661) and other PCT applications*

First priority filing 12 Dec 2012

- *Harvard PCT/US2013/075317 (WO/2014/099744) and other PCT applications*

First priority filing 17 Dec 2012

5.2.12

See Schedule 5.2.11 regarding the Potential Interference, TPOs Against Others and an Opposition (each as defined in Schedule 5.2.11).

5.2.14

See Material Agreements Relating to Contributed Technology (as provided in Schedule 5.2.7), each of which (except for the non-exclusive license agreement with Georgia Tech Research Corporation) provides for the payment of royalties in connection with commercialisation of licensed products - but no commercialisation has yet occurred and therefore no royalties have yet been paid.

5.2.15.

See Schedule 5.2.7, in connection with which it is noted that CRISPR is not an owner of the Platform Technology Patents listed in Part A, nor of the Background Patent non-exclusively licensed to CRISPR from […***…].

5.2.16.

See Schedule 5.2.7, in connection with which it is noted that Charpentier is a co-owner of numerous patent applications as noted, and other co-owners and their licensees and certain governmental and non-profit entities also have rights in such cases.

5.2.17.

See Schedule 5.2.7, in connection with which it is noted that Charpentier is a co-owner (and co-developer) of know-how related to the technologies described in the patent applications as noted, and therefore other co-owners and their licensees and certain non-profit entities have also had access to such know-how, as well as patent applications.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.2.18.

See Schedule 5.2.7, in connection with which it is noted that Charpentier is a co-owner of numerous patent applications as noted with the University of California, which has indicated that the invention was made with government support under Grant No. GM081879 awarded by the National Institutes of Health, and that the U.S. government has certain rights in the invention; […***…].

5.2.19.

See Schedule 5.2.11 regarding Third Party IP (as defined in Schedule 5.2.11).

5.2.21.

See Schedule 5.2.11 regarding Third Party Matters (as defined in Schedule 5.2.11).

5.2.22.

See Schedule 5.2.11 regarding Third Party Matters (as defined in Schedule 5.2.11).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

APPENDIX 1

Patent Rights

[…***…]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SPECIFIC TERMS IN THIS EXHIBIT HAVE BEEN REDACTED BECAUSE CONFIDENTIAL TREATMENT FOR THOSE TERMS HAS BEEN REQUESTED. THESE REDACTED TERMS HAVE BEEN MARKED IN THIS EXHIBIT WITH THREE ASTERISKS [***]. AN UNREDACTED VERSION OF THIS EXHIBIT HAS BEEN SEPARATELY FILED WITH THE SECURITIES AND EXCHANGE COMMISSION.

Exhibit 10.3

THIS OPTION AGREEMENT (the "Agreement") is made and entered into as of March 16, 2016 (the "Effective Date"), by and among, CRISPR Therapeutics AG, a stock corporation (*Aktiengesellschaft)* organized under the laws of Switzerland and registered under the registration number CHE-494.642.722 ("CRISPR"), and Bayer HealthCare LLC, a limited liability company incorporated under the laws of Delaware ("Bayer") and VIVR, LLP ,a limited liability partnership incorporated under the laws of England and Wales ("Company"). Bayer and CRISPR, collectively, are the "Optionees" and each, individually, is an "Optionee". Terms not otherwise defined herein shall have the meaning set forth in that certain Joint Venture Agreement, dated as of December 19, 2015 (as amended, restated, or otherwise modified from time to time, the "JV Agreement").

WHEREAS, CRISPR and Bayer are parties to the JV Agreement; and

WHEREAS, the Company desires to provide for an option to each Optionee with respect to Licensed Products developed under the JV Agreement.

NOW THEREFORE, the Optionees and the Company agree as follows:

ARTICLE 1 DEFINITIONS

The following terms shall have the following meanings:

1.1 "Affiliate" or "Affiliates" means, with respect to any entity, any Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such entity; and for the purposes of this definition, "control" (and the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such entity, directly or indirectly, whether through the ownership of voting securities or by contract or otherwise. Without limiting the generality of the foregoing, a Person shall be deemed to control another Person if any of the following conditions is met: (a) in the case of corporate entities, direct or indirect ownership of at least fifty percent (50%) of the stock or shares having the right to vote for the election of directors, and (b) in the case of non-corporate entities, direct or indirect ownership of at least fifty percent (50%) of the equity interest with the power to direct the management and policies of such non-corporate entities. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and that in such case such lower percentage shall be substituted in the preceding sentence, provided that such foreign investor has the power to direct the management and policies of such entity. For the purposes of this Agreement, (i) no Party or any of its Affiliates shall be considered an Affiliate of any other Party or any of its Affiliates or of the Company or any of its Affiliates, and neither the Company nor any of its Affiliates shall be considered an Affiliate of any Party or any of its Affiliates, simply by virtue of this Agreement or the relationships created hereby or by the Company Organization Documents or any Local Operating Agreement, and (ii) no Person shall be considered an Affiliate of a Party solely as a result of their right to designate a member of such Party's board of directors.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.2 “Approval Application” means, with respect to a Licensed Product in a particular jurisdiction, an application for approval, license, registration or authorization necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, an application for approval for such Licensed Product by the FDA, and with respect to the European Union, an application for approval for such Licensed Product by the European Commission.

1.3 “Bayer Field” means any Field under the heading “Bayer Field” on Schedule 3.1 of the JV Agreement.

1.4 “Business Day” means any day other than a Saturday, a Sunday or a day on which banks in New York City, United States of America or Frankfurt-Main, Germany or Leverkusen, Germany are authorized or obligated by applicable law or executive order to close.

1.5 “Change of Control” means, with respect to Party, any of the following events: (a) any Person is or becomes the “beneficial owner” (as such term is used in Section 13(d) of the Securities Exchange Act of 1934, as amended, and Rule 13d-3 thereunder, except that a Person shall be deemed to have “beneficial ownership” of all shares that any such Person has the right to acquire, whether such right may be exercised immediately or only after the passage of time), directly or indirectly, of a majority of the total voting power represented by all classes of capital stock then outstanding of Party normally entitled to vote in elections of directors; (b) Party consolidates with or merges into another corporation or entity, or any corporation or entity consolidates with or merges into Party, other than (i) a merger or consolidation that would result in the voting securities of Party outstanding immediately prior to such merger or consolidation continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or any parent thereof) a majority of the combined voting power of the voting securities of Party or such surviving entity or any parent thereof outstanding immediately after such merger or consolidation, or (ii) a merger or consolidation effected to implement a recapitalization of Party (or similar transaction) in which no Person becomes the beneficial owner, directly or indirectly, of voting securities of Party representing a majority of the combined voting power of Party’s then outstanding securities; or (c) Party conveys, transfers or leases all or substantially all of its assets to any Person other than a wholly-owned Affiliate of such Party; provided, that a financing transaction, the primary purpose of which is to raise capital for such Party, shall in no event be considered a Change of Control.

1.6 “Clinical Trial” means a study in humans that is designed to generate data in support of an Approval Application.

1.7 “Commercialize” or “Commercialization” means to market, promote, distribute, offer for sale, sell, have sold, import, export or otherwise commercialize a product, to conduct activities, other than, Development and Manufacturing, in preparation for the foregoing activities, including obtaining Price Approval, and to conduct Clinical Trials and post-Marketing Approval studies. When used as a noun, “Commercialization” means any and all activities involved in Commercializing.

1.8 “Commercially Reasonable Efforts” means with respect to the efforts to be expended by any Person, with respect to any objective, reasonable, diligent and good faith efforts to

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

accomplish such objective. With respect to any Objective relating to the research, Development or Commercialization of a Licensed Agent or Licensed Product, "Commercially Reasonable Efforts" means that level, caliber and quality of efforts and resources reasonably and normally used (as to CRISPR) by biopharmaceutical companies with adequate financing and resources, (as to Company), by biopharmaceutical companies of similar size to Company with adequate financing and resources and (as to Bayer) as Bayer would normally use to accomplish a similar objective under similar circumstances, as to a potential or actual product that is important to such Person's overall strategy or Objectives, taking into account, without limitation, with respect to each Licensed Agent or Licensed Product, (a) issues of safety, efficacy, product profile, (b) likelihood of receiving Marketing Approval for the applicable Licensed Product, (c) potential to accelerate the development and regulatory timelines for the Licensed Product, (d) regulatory structure involved, (e) Regulatory Authority-approved labeling, (f) market potential of the Licensed Product, (g) potential benefit of the Licensed Product to patients with the relevant indication, (h) competitiveness in the marketplace, (i) proprietary position and (j) other relevant scientific, technical and business factors deemed relevant by the applicable Party. "Commercially Reasonable Efforts" shall be determined on a country-by-country basis and activities that are conducted in one country that have an effect on achieving the relevant Objective in another country shall be considered in determining whether Commercially Reasonable Efforts have been applied in such other countries.

1.9 "Control" means with respect to any Know-How or Patent or other data, information or Materials, possession of the ability by a Party or its Affiliate(s) (whether by sole or joint ownership, license or otherwise, but in all cases not including when such rights are granted or obtained pursuant to the Transaction Documents) to grant, without violating the terms of any agreement with a Third Party, a license, access or other right in, to or under such Know-How or Patent or other data, information or Materials. Notwithstanding anything in the Transaction Documents to the contrary, a Party will be deemed to not Control any Patents or Know-How that are owned or controlled by a Third Party described in the definition of "Change of Control," or such Third Party's Affiliates (other than an Affiliate of such Party prior to the Change of Control), (a) prior to the closing of such Change of Control, except to the extent that any such Patents or Know-How were developed prior to such Change of Control through the use of such Party's technology, or (b) after such Change of Control to the extent that such Patents or Know-How are developed or conceived by such Third Party or its Affiliates (other than such Party) after such Change of Control without using or incorporating such Party's technology. A Party does not need to amend any existing in-license as of the Effective Date so that such Party "Controls" any IP under such given in-license.

1.10 "Covered Target" means a Target as and for so long as such Target remains the subject of a license or similar grant of rights under the Existing Third Party Agreement. For the avoidance of doubt, Covered Targets shall not be deemed Third-Party Targets or Excluded Covered Targets.

1.11 "Crispr/Cas Technology" means clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) protein system that comprises (a) at least one guide RNA element that is complementary to a Target, wherein said guide RNA element can be a guide RNA or a polynucleotide(s) encoding such guide RNA, and (b) a nuclease element, wherein said nuclease element is a Cas nuclease protein.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.12 “CRISPR Field” means any Field under the heading “CRISPR Field” on Schedule 3.1 of the JV Agreement.

1.13 “Develop” or “Development” means, with respect to a Licensed Agent, all clinical and non-clinical research and development activities conducted for such Licensed Agent, including toxicology, pharmacology test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, Clinical Trials (other than post-Marketing Approval Clinical Trials), regulatory affairs, pharmacovigilance, Clinical Trial regulatory activities and obtaining and maintaining Regulatory Approval. When used as a verb, “Develop” or “Developing” means to engage in Development.

1.14 “EMA” means the European Medicines Agency and any successor entity thereto.

1.15 “Existing Third Party Agreement” means that certain Strategic Collaboration, Option and License Agreement entered into by and between CRISPR (and certain of its Affiliates) and Vertex Pharmaceuticals, Incorporated (and certain of its Affiliates) dated as of October 26, 2015.

1.16 “European Commission” means the European Commission or any successor entity that is responsible for granting Marketing Approvals authorizing the sale of pharmaceuticals in the European Union.

1.17 “European Union” or “EU” means each and every country or territory that is officially part of the European Union.

1.18 “FDA” means the United States Food and Drug Administration and any successor agency thereto.

1.19 “Fields” means the CRISPR Fields and the Bayer Fields, provided fields shall not include diagnosis, prevention or treatment of cystic fibrosis.

1.20 “FTE” shall mean a full time equivalent employee (*i.e.*, one fully-committed or multiple partially-committed employees aggregating to one full-time employee) employed or contracted by a Party and assigned to perform specified work, with such commitment of time and effort to constitute one employee performing such work on a full-time basis, which for purposes hereof shall be eighteen hundred (1,800) hours per year.

1.21 “GAAP” means United States generally accepted accounting principles, consistently applied, as in effect from time to time.

1.22 “Governmental Authority” means any court, agency, authority, department, regulatory body or other instrumentality of any government or country or of any national, federal, state, provincial, regional, county, city or other political subdivision of any such government or any supranational organization of which any such country is a member.

1.23 “IFRS” means International Accounting Standards/International Financial Reporting Standards of the International Accounting Standards Board as amended from time to time.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.24 “IND” means with respect to each Licensed Product in a Field, an Investigational New Drug Application filed with the FDA with respect to such Licensed Product, as described in the FDA regulations, including all amendments and supplements to the application, and any equivalent filing with any Regulatory Authority outside the United States.

1.25 “Intellectual Property” means (i) patents (including utility, design, plant, utility model, reissues, re-examination, and patents of addition), patent applications (filed, unfiled or being prepared), records of invention, (ii) trademarks (registered or unregistered), trademark applications, trade names, copyrights (registered or unregistered), copyright applications, mask works, service marks (registered or unregistered), service mark applications, database rights (registered or unregistered), all together with the goodwill associated with such marks or names, (iii) trade secrets, technology, inventions, know-how, processes and confidential and proprietary information, including any being developed (including but not limited to designs, manufacturing data, design data, test data, operational data, and formulae), whether or not recorded in tangible form through drawings, software, reports, manuals or other tangible expressions, whether or not subject to statutory registration, anywhere, and all rights to any of the foregoing.

1.26 “Intellectual Property Management Agreement” means that certain Intellectual Property Management Agreement by and among the Company, Bayer, CRISPR and certain of CRISPR’s Affiliates dated as of March 16, 2016.

1.27 “Know-How” means Intellectual Property, data, results, pre-clinical and clinical protocols and data from studies and Clinical Trials, chemical structures, chemical sequences, information, inventions, know-how, formulas, trade secrets, techniques, methods, processes, procedures and developments, whether or not patentable; *provided* that Know-How does not include Patents claiming any of the foregoing.

1.28 “Law” or “Laws” means all applicable laws, statutes, rules, regulations and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, agency or other body, domestic or foreign, including any applicable rules, regulations, guidelines, or other requirements of the Regulatory Authorities that may be in effect from time to time.

1.29 “Licensed Agent” means a product comprising (a) all components of a Crispr/Cas Technology, for Targeting a Target, where such Crispr/Cas Technology, or any portion thereof is discovered by or on behalf of the Company or a Local Operating Entity (solely or jointly with such entities), or is in the Company’s or a Local Operating Entity’s Control, prior to the Effective Date, or during the Technology Term or (b) modified human cells or tissue, or another cell- or tissue-based product, or any other therapeutic product comprising or produced using the Crispr/Cas Technology, in each case produced using the components referred to in clause (a).

1.30 “Licensed Product” means any Product that (i) has been licensed by a Party following opt-in or (ii) licensed to a Third Party. All Products comprising the same Licensed Agent(s) (and no additional Licensed Agents) will be considered the same Licensed Product under this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.31 “Local Operating Agreement” means, as applicable, any agreement governing the formation and operation of any Local Operating Entity formed pursuant to Section 3.3 of the JV Agreement.

1.32 “Local Operating Entity” means any local operating entity formed by the Company pursuant to Section 3.3 of the JV Agreement.

1.33 “Manufacture” or “Manufacturing” means activities directed to making, having made, producing, manufacturing, processing, filling, finishing, packaging, labeling, quality control testing and quality assurance release, shipping or storage of a product.

1.34 “Marketing Approval” means, with respect to a Licensed Product in a particular jurisdiction, all approvals, licenses, registrations or authorizations necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, approval of an Approval Application for such Licensed Product by the FDA and with respect to the European Union, approval of an Approval Application for such Licensed Product by the European Commission.

1.35 “Materials” means all biological materials or chemical compounds arising out of a Party’s activities under this Agreement or otherwise provided by a Party for use by the other Party to conduct activities pursuant to this Agreement, including Licensed Agents, Clinical Trial samples, cell lines, assays, viruses and vectors.

1.36 “Out-of-Pocket Costs” means, with respect to a Party, costs and expenses paid by such Party to Third Parties (or payable to Third Parties and accrued in accordance with GAAP or IFRS), other than Affiliates or employees of such Party.

1.37 “Party” or “Parties” means, when used in singular, any signatory to the applicable agreement, as the context may require, and when used in plural, all signatories to the applicable agreement, and any permitted successor or assign thereto.

1.38 “Patents” means the rights and interests in and to issued patents and pending patent applications and similar government-issued rights (e.g., utility models) protecting inventions in any country, jurisdiction or region (including inventor’s certificates and utility models), including all priority applications, international applications, provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing.

1.39 “Person” means any individual, partnership, limited partnership, limited liability company, joint venture, syndicate, sole proprietorship, company or corporation with or without share capital, unincorporated association, trust, trustee, executor, administrator or other legal personal representative or governmental body.

1.40 “Price Approval” means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.41 “Primary Indication” means, with respect to a Target, the condition or disease that is most closely associated with the diagnosis, prevention or treatment through Targeting such Target as determined by the then-current weight of reliable scientific authority, for example, as reflected in peer-reviewed publications.

1.42 “Product” means any pharmaceutical product, medical therapy, preparation, substance, or formulation comprising or employing, in whole or in part, a Licensed Agent.

1.43 “Registration Filing” means any submission to a Regulatory Authority of any appropriate regulatory application for Regulatory Approval.

1.44 “Regulatory Approval” means the technical, medical and scientific licenses, registrations, authorizations and approvals (including approvals of Approval Applications, supplements and amendments, pre- and post- approvals, and labeling approvals) of any Regulatory Authority, necessary for the research, Development, clinical testing, commercial manufacture, distribution, marketing, promotion, offer for sale, use, import, export or sale of a pharmaceutical product in a regulatory jurisdiction, including Marketing Approval.

1.45 “Regulatory Authority” means, with respect to a country in the Territory, any national (*e.g.*, the FDA), supra-national (*e.g.*, the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Price Approvals for pharmaceutical products in such country or countries.

1.46 “Target” means […***…]. The Targets as of the Effective Date are listed on Schedule A of the JV Agreement with an indication of […***…]. Additional Targets may be included after the Effective Date solely by updating Schedule A of the JV Agreement in accordance with Section 7.13 of the JV Agreement.

1.47 “Targeting” means editing, engineering or modulating (including by means of gene knock-out, gene tagging, gene disruption, gene mutation, gene insertion, gene deletion, gene activation, gene silencing or gene knock-in) a Target or an Excluded Target or a Covered Target by means of hybridizing a guide RNA of the Crispr/Cas Technology to such Target or Excluded Target or Covered Target.

1.48 “Technology Term” means from the Effective Date until the Company is no longer Developing Licensed Agents or Licensed Products.

1.49 “Territory” means all the countries of the world.

1.50 “Third Party” means any Person other than Bayer or CRISPR or any Affiliate of either Party.

1.51 “Third-Party Target” means a Target that is the subject of a license or similar grant of rights pursuant to an agreement between CRISPR or one of its Affiliates and a Third-Party;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

provided, that such Target was licensed in accordance with the procedures set forth in Section 3.7 of the JV Agreement. For the avoidance of doubt, Third-Party Targets include all Excluded Targets.

The following terms shall have the meanings defined in the Section or Schedule indicated. Unless otherwise noted, the indicated Section or Schedule refers to the appropriate Section or Schedule of this Agreement.

Additional Information	Section 2.4(a)
Agreement	First Paragraph
Antitrust Approval	Exhibit C
Antitrust Authority	Exhibit C
Antitrust Condition	Exhibit C
Antitrust Filing	Exhibit C
Antitrust Law	Exhibit C
[…***…]	[…***…]
Bayer	First Paragraph
Buffer Period	Section 2.4(a)
CRISPR	First Paragraph
[…***…]	[…***…]
Company	First Paragraph
Company Organization Documents	Section 3.2(b)(i) of the JV Agreement
Effective Date	First Paragraph
Excluded Covered Targets	Section 3.6(i) of the JV Agreement
Exclusive Field Party	Section 2.5(b)
Excluded Target	Section 3.7 of the JV Agreement
Form License Agreement	Section 2.4(a)
Information	Section 4.1 of the Intellectual Property Management Agreement
Initial Budget	Section 8.11(a) of the JV Agreement
Initial Business Plan	Section 3.2(b)(xii) of the JV Agreement
Interests	Section 3.3 of the JV Agreement
JV Agreement	First Paragraph
[…***…]	[…***…]
Key Results Memo	Section 2.4(a)
Management Board	Section 7.1 of the JV Agreement
Objective	Section 3.1 of the JV Agreement
Offer Terms	Section 2.4(a)
Opt-In Closing	Section 2.5(h)
Opt-In Effective Date	Section 2.6(a)
Opt-In Field	Section 2.6(a)
Opt-In Package	Section 2.4(a)
Opt-In Package Delivery Date	Section 2.4(a)
Opt-In Transaction	Section 2.5(h)
Optionee; Optionees	First Paragraph
Permitted COC Transfer	Section 11.3 of the JV Agreement
Preliminary Offer	Section 2.5(f)
Primary Indication Field	Section 2.5(c)
Qualifying Offer	Section 2.4(a)
Resolution Period	Section 5.1
Revised Offer	Section 2.5(g)
Rolling Budget	Section 8.11(b) of the JV Agreement
Rolling Business Plan	Section 8.11(b) of the JV Agreement
Term	Section 3.1
Transaction Documents	Section 3.2(b) of the JV Agreement
Winning Offer	Section 2.5(g)

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 2

2.1 *General.* The Company shall and does hereby grant each Optionee the option, as more fully set forth herein, to opt-in to a Licensed Product as more specifically set forth below.

2.2 *Development of Products*. Unless and until an Optionee or a Third Party effects the closing of a transaction hereunder with respect to a Licensed Product, the Company (and/or Local Operating Entities) shall have the sole right to Develop such Licensed Product in the Fields in the Territory and shall use Commercially Reasonable Efforts to undertake all Development activities with respect to such Licensed Product in the Fields pursuant to the Initial Business Plan, the Initial Budget, the Rolling Business Plan and the Rolling Budget. For clarity, the Company (and/or Local Operating Entities) shall be the lead regulatory party with respect to such Licensed Product in the Fields in the Territory prior to the Opt-In Effective Date with respect to such Licensed Product, and the Company (and/or Local Operating Entities) shall submit and own all Regulatory Approvals and Registration Filings with respect to the Development of Licensed Products in the Fields in the Territory.

2.3 *Development Updates*. Prior to a termination of this Agreement, the Company shall provide to each Optionee at least […***…] a written high-level summary of all Development activities performed and any results achieved and progress against timelines and budgets. The Parties hereto agree that each such summary shall be deemed Information subject to Article 4.

2.4 *Key Results and Opt-In Package*.

(a) The Company shall provide to both Optionees a copy of the key results memorandum that the Company delivers to its senior management in connection with any IND submission in an Optionee's Field (such memorandum, the "Key Results Memo"), the IND submission (including all data, exhibits and related correspondence with the FDA), the letter from the FDA accepting the Company's IND submission and the other data and information reasonably necessary to evaluate the advisability of, and the preparation of, an offer (such data and information, the "Additional Information" and together with the Key Results Memo, the

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

"Opt-In Package") within […***…] after the date that the Company receives the FDA letter notifying it of the FDA's acceptance of the IND submission (the last day of this period being the "Opt-in Package Delivery Date"). The Company shall endeavor to provide each Optionee with at least […***…] days' advance written notice of delivery of the Opt-In Package in order to facilitate such Optionee ensuring that it has sufficient resources to undertake a prompt and efficient review of the Opt-In Package when received. In addition, if reasonably requested by either Optionee, appropriate functional Company representatives shall meet with both Optionees' functional representatives in person or by phone, at times mutually agreed to, to discuss the contents of the Opt-In Package and either Optionee's request(s) for additional information and data. For purposes of clarity, any notice of estimated timeline for the delivery of the Opt-In Package or exchange of information described in this Section 2.4 will not impact or modify any of the other provisions, including timelines, of this Article. Following the Company's delivery of the Opt-In Package, either Optionee may request in writing that the Company provide specific additional background information and data (although not including raw data) to further clarify the contents of the Opt-In Package, which information and data, the Company shall promptly make available to both Optionees to the extent that such request(s) are commercially reasonable and to the extent and in such form as such information and data are in the Company's possession and Control. […***…].

(b) During the […***…]-day period after receipt of the Opt-In Package (the "Buffer Period"), the Optionees shall have the exclusive right to review the Opt-In Package and to submit an offer to opt-in to the Licensed Product described in the Opt-In Package. Each Optionee agrees to only make offers in good faith. In addition to the Opt-In Package, the Company shall provide, at the same time as the Opt-in Package, each Optionee with the Company's current offer terms ("Offer Terms") which shall include a license agreement in the form attached hereto as Exhibit A (the "Form License Agreement"). The Offer Terms shall be adopted by the Management Board and revised as determined by approval of the Management Board. The Offer Terms shall include a requirement that offers […***…]. An offer from either Optionee or a Third Party which meets the Offer Terms in all material respects shall be a ("Qualifying Offer"). Each Optionee agrees to cause its designees on the Management Board to consider and evaluate any Third Party offer in good faith and if the Management Board determines in its reasonable discretion that despite such Third Party not satisfying the Offer Terms in all material respects, that such offer may provide the highest value to the Company, such offer shall be deemed a Qualifying Offer for all purposes hereunder. The determination of highest value shall be evaluated upon such factors as the Management Board may, in its discretion, determine.

(c) At any time after the Buffer Period, either Optionee may demand that the Company seek binding Third Party offers with such offers due within […***…] days of the date such Third Party receives the Opt-In Package, the Offer Terms and the Form License Agreement. The Management Board shall determine in its reasonable discretion the timing and process for seeking Third Party offers. For clarity, either Optionee may submit a Qualifying Offer during or after the Buffer Period until Third Party offers are due.

(d) A copy of each Qualifying Offer (including a copy of the offer and all related documents) shall be delivered to the Management Board. The Company shall promptly deliver all Qualifying Offers to each […***…]. The Parties hereto agree that all Qualifying Offers shall be deemed Information subject to Article 4. For clarity, the decision as to whether an offer is a Qualifying Offer shall be made by the entire Management Board in accordance with the Offer Terms.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.5 *Opt-In Right*.

(a) Upon receipt of all Qualifying Offers or on the expiration of the submission time, the Management Board of the Company shall evaluate the Qualifying Offers and determine which provides the highest value to the Company. For the avoidance of doubt, […***…].

(b) If only […***…] has been submitted, the Management Board shall […***…], determine, by approval of all voting members, whether to accept or reject such Qualifying Offer. If the Qualifying Offer is […***…].

(c) If both Optionees have submitted Qualifying Offers (and no Qualifying Offers from Third Parties have been received), then the Management Board may, by approval of all voting members, determine that one of the Qualifying Offers provides the highest value to the Company. If the voting members of the Management Board cannot make such a determination, then the Qualifying Offers shall be submitted to an arbitrator for determination in accordance with the procedures set forth in Exhibit B hereto ("Baseball Arbitration") which of the Qualifying Offers provides the highest value to the Company […***…].

(d) If both Optionees and at least one Third Party make a Qualifying Offer, all voting members of the Management Board shall be entitled to participate in the evaluation, discussion and voting regarding the determination of which Qualifying Offer provides the highest value to the Company. If the Management Board cannot agree as to which Qualifying Offer provides the highest value to the Company, then […***…] shall determine what Qualifying Offer […***…] believes provides the highest value to the Company and these two Qualifying Offers shall be […***…] to determine which of the Qualifying Offers provides the highest value to the Company. If the Qualifying Offer finally determined to provide the highest value to the Company was the […***…], such Qualifying Offer shall be referred to as the Winning Offer.

(e) If only one Optionee has submitted a Qualifying Offer and at least one Third Party makes a Qualifying Offer, then the Management Board may, by approval of the voting members in accordance with Section 2.5(j) below, determine that one of the Qualifying Offers provides the highest value to the Company. If the voting members of the Management Board cannot make such a determination, then […***…] shall determine what Qualifying Offer […***…] believes provides the highest value to the Company and these […***…]. If the Qualifying Offer finally determined to provide the highest value to the Company is the […***…], such Qualifying Offer shall be referred to as the Winning Offer.

(f) The Qualifying Offer (provided such Qualifying Offer is not a Winning Offer) which provides the highest value to the Company (whether finally determined by the […***…]) is referred to as (the "Preliminary Offer"). The Company shall provide each Optionee with written notice of the Preliminary Offer, the terms thereof and the name of the party submitting such offer. The Optionees agree that the Preliminary Offer shall be deemed Information subject to Article 4.

(g) The […***…] shall have […***…] Business Days after receipt of the Preliminary Offer to provide a new offer consistent with the Offer Terms (the "Revised Offer"). Upon receipt of the Revised Offer, the Management Board shall evaluate such Revised Offer. If

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

the Revised Offer is finally determined […***…] to (i) equal or exceed the Preliminary Offer in the event that the Preliminary Offer was submitted by the other Optionee, or (ii) exceed […***…] in the event that the Preliminary Offer was submitted by a Third Party, then such Revised Offer shall be referred to as the Winning Offer. Otherwise, the Preliminary Offer shall be referred to as the Winning Offer. The "Winning Offer" shall be the Qualifying Offer or Revised Offer, as the case may be, which is accepted by the Management Board or […***…] pursuant to the provisions hereof or otherwise deemed to be the Winning Offer as set forth in Section 2.5(b).

(h) The Company shall close the transaction with the party providing the Winning Offer as soon as possible following the satisfaction of the Antitrust Condition (as defined in Exhibit C), if applicable to such transaction. Upon completion of such transaction, the license agreement substantially on the terms as set forth in the Winning Offer entered into between the prevailing Optionee or a Third Party on one side and the Company on the other side shall become effective (an "Opt-In Transaction") and the party providing such Winning Offer shall have completed an "Opt-In Closing". At the Opt-In Closing, each Optionee not a party to such transaction shall use reasonable best efforts to assist the Company in completing the applicable Opt-In Transaction. In connection with any Opt-In Transaction, the Company and each Optionee, as applicable, shall comply with the covenants set forth in Exhibit C. If the Antitrust Condition is not satisfied, the Management Board shall determine in its discretion the process for effecting an alternative transaction with respect to the applicable Licensed Product.

(i) Notwithstanding anything herein to the contrary, the Optionees may agree to delay the Opt-In Package Delivery Date until any future date by unanimous written consent.

(j) Notwithstanding anything herein to the contrary, in evaluating Qualifying Offers, all members of the Management Board shall be entitled to participate in the evaluation and discussion regarding the determination of which Qualifying Offer provides the highest value to the Company. If only one Optionee and at least one Third Party have submitted a Qualifying Offer (Section 2.5(e) above), […***…] regarding the Management Board's determination of which Qualifying Offer provides the highest value to the Company, […***…].

(k) Upon termination of the JV Agreement, the Company shall promptly proceed to prepare an Opt-In Package for each Licensed Product for which the FDA has accepted an IND submission but which is not subject to an Opt-In Transaction yet. Such Opt-In Package(s) shall be delivered to each Optionee (but not to Third Parties). The Optionees shall have the right, but not the obligation, to make an offer during the Buffer Period. […***…] All other provisions of this Agreement shall apply to such offers.

2.6 *Effect of Optionee Opt-In Transaction*.

(a) Exclusive Rights. In the event that an Optionee successfully effects an Opt-In Closing, such Optionee shall, from and after the date of consummation of the Opt-In Transaction (the "Opt-In Effective Date"), have the exclusive right to Develop, Manufacture and Commercialize Licensed Products for all indications in the Primary Indication Field which was subject to the Opt-In Transaction in the Territory (the "Opt-In Field"), as more fully set forth in the Form License Agreement. If a Third Party successfully effects an Opt-In Closing, such Third

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Party shall, from and after the Opt-In Effective Date, have the exclusive right to Develop, Manufacture and Commercialize Licensed Products for which it opts-in for all indications in the Opt-In Field in the Territory. No Optionee shall have the right to Develop, Manufacture, Commercialize or otherwise exploit Licensed Products in any Field during the Term unless and until it successfully effects an Opt-In Closing (unless otherwise agreed by the Optionees in writing).

(b) […***…]

(c) […***…] Upon receipt of a […***…] notice, the Parties shall negotiate in good faith […***…] for such Licensed Product and the […***…]. If, and to the extent, there is a dispute regarding the […***…] for the […***…] notice and such dispute cannot be resolved within […***…] days from the receipt of such notice, the Parties shall escalate such dispute in accordance with Section 5.1 of this Agreement. If the Parties cannot resolve the dispute after such escalation within the Resolution Period, either Optionee may elect to submit such matter for determination by […***…]. If, and to the extent, that the Optionees have a dispute regarding either (i) the extent to which the data supports a […***…] or (ii) the Opt-In Field to which such Licensed Product […***…], and such dispute cannot be resolved within […***…] from the receipt of such notice, the Parties shall escalate such dispute in accordance with Section 5.1 of this Agreement. As promptly as practicable after the agreement of the Parties or final resolution of any dispute, the license agreement related to such Opt-in Transaction shall be amended to […***…] therein consistent with the final agreement of the Parties or final resolution of any dispute thereof. Notwithstanding the foregoing, the scope of the […***…] shall be subject to any prior Opt-In Transaction or a license of the Company to a Third Party.

(d) […***…] Upon receipt of a […***…] notice from Bayer, the applicable Parties shall negotiate in good faith for an expansion of the […***…] for such Licensed Product and the […***…]. The […***…] for any […***…] shall be […***…]. Neither Optionee shall have any obligation to grant a license upon receipt of a […***…].

(e) Obligations. In the event that an Optionee effects an Opt-In Closing (i) the non-opting-in Optionee, the Company and the Local Operating Entities shall not be responsible for bearing any remaining ongoing Development costs relating to the applicable Licensed Product; (ii) the opting-in Optionee shall be responsible for paying […***…] of all amounts owed by Company and any Local Operating Entities to Third Parties and all reasonable Out-of-Pocket Costs and FTE costs incurred by Company or any Local Operating Entity in meeting its obligations under any existing licenses, in each case, as a result of such Optionee's (or its Affiliate's or Sublicensee's) Development, Manufacture or Commercialization of any opted-in Licensed Product relating to a period of time as from the applicable Opt-in Effective Date; and (iii) the applicable subsections of Section 3.6 of the JV Agreement (Non-Compete) shall apply.

ARTICLE 3 TERM; TERMINATION

3.1 **Agreement Term; Expiration**. This Agreement is effective as of the Effective Date and shall terminate upon termination of the JV Agreement (the "Term").

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

3.2 **Consequences of Expiration or Termination of the Agreement.**

(a) If this Agreement terminates in accordance with Section 3.1, the terms of Section 16.2 of the JV Agreement shall determine the consequences of termination of the Agreement.

(b) The following provisions of this Agreement will survive any termination of this Agreement: Article 1, Article 2.5(k) (and any provisions required to give effect to Article 2.5(k)), Article 2.6(a), Article 2.6(e), Article 3.2, Article 4, Article 5 and Article 6.

ARTICLE 4 CONFIDENTIALITY

Confidentiality. All Information under this Agreement shall be governed by the Confidentiality provisions specified in Article 4 of the Intellectual Property Management Agreement and such Article 4 is hereby incorporated by reference.

ARTICLE 5 DISPUTE RESOLUTION

5.1 **Referral to Heads of Businesses.** Unless otherwise specified in this Agreement, the Parties hereto hereby agree that to the extent reasonably practicable and would not materially prejudice any such party, controversies or claims arising out of or relating to this Agreement or the interpretation, performance, breach, termination or validity thereof shall first be referred to the head of Bayer AG's Head of R&D, CRISPR's Chief Executive Officer and the Company's Chief Executive Officer for resolution. If these individuals are unable to agree upon a resolution within thirty (30) days after referral of the matter to them (a "Resolution Period"), then any Party hereto may pursue any available remedy hereunder, at law or in equity.

5.2 **Attorneys' Fees**. If any action at law or in equity (including, arbitration) is necessary to enforce or interpret the terms of this Agreement, including claims for fraud and/or fraudulent inducement, the prevailing Party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other relief to which such party may be entitled.

5.3 **Jurisdiction.** Unless otherwise specified in this Agreement, each Party to this Agreement, by its execution hereof, unless otherwise prohibited by applicable Law (i) hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any action among the Parties, (ii) hereby waives and agrees not to assert, by way of motion, as a defense or otherwise, in any such action, any claim that it is not subject personally to the jurisdiction of the above-named courts, that any such action brought in one of the above-named courts should be dismissed on grounds of forum non conveniens, should be transferred or removed to any court other than one of the above-named courts, or should be stayed by reason of the pendency of some other proceeding in any court other than one of the above-named courts, or that this Agreement or the subject matter hereof may not be enforced in or by such court and (iii) to the extent that an action can be commenced in a court, agrees not to commence any such action in any court other than before one of the above-named courts. Notwithstanding the previous sentence, a Party hereto may commence any action in a court other than the above-named courts for the purpose of enforcing an order or judgment issued by one of the above-named courts.Venue**.** No Party hereto will assert that venue should properly lie in any other location within the selected jurisdiction.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.4 **Specific Performance.** Each of the Parties hereto acknowledges and agrees that the other Party would be damaged irreparably in the event any of the provisions of this Agreement are not performed in accordance with their specific terms or otherwise are breached or violated. Accordingly, each of the Parties hereto agrees that, without posting a bond or other undertaking, the other Party may seek (and obtain) an injunction or injunctions to prevent breaches or violations of the provisions of this Agreement and to enforce specifically this Agreement and the terms and provisions hereof in any Action instituted in any court specified herein. An Action for specific performance as provided herein shall not preclude a Party hereto from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Agreement. Each Party hereto further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate provided, however, each Party hereto also agrees that any Party hereto can assert any other defense it may have other than the defense of adequate remedy at law.

ARTICLE 6 ASSIGNMENT

6.1 **Assignment**. Except as permitted under the JV Agreement (including a Permitted COC Transfer complying with Article 11 of the JV Agreement) or this Agreement, (a) any of the rights, interests and obligations created herein shall not be transferred or assigned to any Third Party and such rights and interests shall not inure to the benefit of any other Person, including any trustee in bankruptcy, receiver or other successor of either of the Parties, whether by operation of Law, sub-license, transfer of the assets, merger, liquidation or otherwise, without the prior written consent of the other Parties, and (b) any purported or actual transfer or assignment of any such rights, interests or obligations without the prior written consent of the other Parties is and shall be null and void ab initio; provided, however, that either of the Parties may, without consent of the other Parties, assign its respective rights and obligations under this Agreement to a successor company of such Party as the result of an internal corporate reorganization to a wholly-owned Affiliate of such Party; provided that the assigning Party shall remain primarily liable hereunder. In addition to the requirements of the prior sentence, if this Agreement is assigned to a Third Party by a Party, as a condition to such assignment, all other Transaction Documents to which such Party is a party shall concurrently be assigned to such Third Party and all Interests of such Party and its Affiliates are to be transferred to such Third Party.

ARTICLE 7 NOTICES AND MISCELLANEOUS

7.1 **Form of Valid Notice**

(a) All notices or other communications provided for in this Agreement or that may otherwise be required must be in writing, clearly legible and shall be sent:

(i) by an internationally recognized courier service with acknowledgment of receipt, properly addressed, and postage pre-paid;

(ii) by e-mail; or

(iii) by personal delivery.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) Any notice sent by one of the means described in Section 7.1(a) will be deemed received:

(i) if sent by an internationally recognized courier service, three (3) Business Days after deposit with such courier service,

(ii) if sent by e-mail, when there is effective acknowledgment of receipt, or

(iii) if delivered personally, when delivered.

7.2 **Persons and Addresses**

Except as may otherwise be provided, all notices or other communications provided for in this Agreement or that a Party may otherwise be required to give to the other Party shall be sent as provided in Section 7.1 to the following persons at the addresses stated herein or at such other address as either Party may specify by notice to the other Party given in accordance with this Article 7:

To Company:
VIVR LLP
c/o Taylor Wessing
5 New Street Square
London EC4A 3TW
Attn: Andrew Davis

With a copy to:
Taylor Wessing
5 New Street Square
London EC4A 3TW
Attn: Andrew Davis

To CRISPR:
CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel
Switzerland
Attention: Chief Executive Officer and Chief Legal Officer

and

CRISPR Therapeutics Ltd.
85 Tottenham Court Road
London W1T 4TQ
United Kingdom
Attention: Chief Legal Officer

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

With a copy to:	Goodwin Procter LLP 53 State Street Boston, MA 02109 USA Attention: Mitchell S. Bloom and Robert E. Puopolo
To Bayer:	Bayer Aktiengesellschaft Kaiser-Wilhelm-Allee 51368 Leverkusen Germany Attention: Dr. Axel Bouchon and Dr. Jan Heinemann
With a copy to:	Norton Rose Fulbright US LLP 801 Pennsylvania Avenue, N.W. Washington, D.C. 20004-2623 USA Attention: Marilyn Mooney

7.3 Miscellaneous

(c) No amendment, modification or addition to any provision of this Agreement shall be valid unless the same shall be in writing and approved by the signature of each Party.

(d) The terms and conditions of this Agreement shall be interpreted according to the common sense meaning intended by the Parties and in accordance with the principles of good faith and fair dealing.

(e) The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Agreement. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise.

(f) Every day commences at 12:00 a.m. and ends at 11:59 p.m. (midnight) New York time. Any reference in this Agreement to a number of days “in” which an action or notice is to be taken or given, shall be interpreted in such way that the term commences the day after the date taken as reference and that the action or notice shall be validly taken or given at the last day. Any reference in this Agreement to a “day” or a number of “days” without explicit qualification of “business” shall be interpreted as a reference to a calendar day or number of calendar days. If any action or notice is to be taken or given on or by a particular calendar day, and such calendar day is not a Business Day, then such action or notice shall be deferred until, or may be taken or given on, the next Business Day.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(g) This Agreement shall constitute the entire agreement and understanding between the Parties and shall supersede and nullify any and all previous agreements, negotiations, commitments, undertakings and declarations heretofore made between the Parties in respect of the subject matter of this Agreement unless expressly provided for herein or in any schedule attached hereto and any other agreement entered in connection herewith.

(h) Words importing gender include all genders.

(i) The division of this Agreement into articles, sections and clauses, the inclusion of a table of contents and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement.

(j) Each provision contained in this Agreement is distinct and severable. A declaration of invalidity, illegality or unenforceability of any provision or a part thereof by an arbitrator, a court or a tribunal of competent jurisdiction shall not affect the validity or enforceability of any other provision of this Agreement. To the extent permitted by law, if any provision of this Agreement, or the application thereof to any Person or any circumstance, is invalid or unenforceable, (i) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (ii) the remainder of this Agreement and the application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application thereof, in any other jurisdiction.

(k) Any mistaken reference to Articles, clauses, Sections, Schedules or paragraphs of this Agreement shall be amended according to common sense and good faith rules. When a reference is made in this Agreement to an Article, clause, Section, Schedule or paragraph, such reference will be to an Article, clause, Section, Schedule or paragraph unless otherwise indicated.

(l) No waiver by any Party of any default, misrepresentation or breach of warranty or covenant hereunder, whether intentional or not, shall be deemed to extend to any prior or subsequent default, misrepresentation or breach of warranty or covenant hereunder or affect in any way any rights arising by virtue of any prior or subsequent such occurrence. No single or partial exercise of any right, power or privilege shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege unless explicitly provided for in this Agreement.

(m) Subject to the terms of and restrictions in this Agreement, the reference to any Party shall include its successors or permitted transferees that have legally acquired its rights, obligations and/or duties. This Agreement shall be binding upon and inure solely to the benefit of the Parties and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other Person any legal or equitable right, benefit or remedy of any nature whatsoever, unless otherwise specified therein.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(n) EACH OF THE PARTIES HEREBY WAIVES TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY WITH RESPECT TO ANY ACTION OR LIABILITY DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT. EACH OF THE PARTIES HEREBY (A) CERTIFIES THAT NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF ANY SUCH ACTION OR LIABILITY, SEEK TO ENFORCE THE FOREGOING WAIVER; AND (B) ACKNOWLEDGES THAT IT HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, AS APPLICABLE, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 22.3(l).

(o) This Agreement may be executed and delivered (including by means of electronic transmission, such as by electronic mail in ".pdf" form) in two or more counterparts, and by the different Parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement.

(p) Whenever the words "include," "includes" or "including" are used in this Agreement, they will be deemed to be followed by the words "without limitation." The words "hereof," "herein" and "hereunder" and words of similar import when used in this Agreement will refer to this Agreement as a whole and not to any particular provision of this Agreement. All terms used herein with initial capital letters have the meanings ascribed to them herein and all terms defined in this Agreement will have such defined meanings when used in any certificate or other document made or delivered pursuant hereto unless otherwise defined therein. The definitions contained in this Agreement are applicable to the singular as well as the plural forms of such terms. Any agreement, instrument or statute defined or referred to herein, or in any agreement or instrument that is referred to herein, means such agreement, instrument or statute as from time to time amended, modified or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The use of "or" is not intended to be exclusive unless expressly indicated otherwise. References to sums of money are expressed in lawful currency of the United States (U.S. dollars), unless the Parites otherwise agree in writing to use a different currency.

(q) The Parties agree that this Agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

[Signature page follows]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the Parties have executed this Option Agreement as of the date first set forth above.

CRISPR

CRISPR Therapeutics AG

Signature: /s/ Rodger Novak
Print Name: Rodger Novak
Title: CEO

BAYER

Bayer HealthCare LLC

Signature: /s/ Alan Stevenson
Print Name: Alan Stevenson
Title: Assistant Secretary

Company:

VIVR LLP:

Signature: /s/ Axel Bouchon
Print Name: Axel Bouchon
Title: General Manager

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit A

Form License Agreement

COMMERCIAL LICENSE AGREEMENT

This Agreement is entered into as of [ ], 20 (the "**Effective Date**") by and between, on the one hand, VIVR LLP, a corporation organized and existing under the laws of England and Wales ("**Company**"), and, on the other hand, [ ] ("**LICENSEE**"), a corporation organized and existing under the laws of [ ].

RECITALS

WHEREAS, the Company has developed a Licensed Product using the CRISPR/Cas Technology; and

WHEREAS, Licensee desires to take a license under the Licensed Technology (as defined below) to Develop, Manufacture and Commercialize the Licensed Product;

NOW, THEREFORE, in consideration of the respective covenants, representations, warranties and agreements set forth herein, the Parties hereto agree as follows:

ARTICLE 1.

For purposes of this Agreement, the following capitalized terms will have the following meanings:

1.1. "Affiliate" or "Affiliates" means, with respect to any entity, any Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such entity; and for the purposes of this definition, "control" (and the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such entity, directly or indirectly, whether through the ownership of voting securities or by contract or otherwise. Without limiting the generality of the foregoing, a Person shall be deemed to control another Person if any of the following conditions is met: (a) in the case of corporate entities, direct or indirect ownership of at least fifty percent (50%) of the stock or shares having the right to vote for the election of directors, and (b) in the case of non-corporate entities, direct or indirect ownership of at least fifty percent (50%) of the equity interest with the power to direct the management and policies of such non-corporate entities. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and that in such case such lower percentage shall be substituted in the preceding sentence, provided that such foreign investor has the power to direct the management and policies of such entity. For the purposes of this Agreement, no Party or any of its Affiliates shall be considered an Affiliate of the other Party or any of its Affiliates.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.1. “Agreement” and “this Agreement” means this Commercial License Agreement, as may be amended or supplemented from time to time, including all Schedules attached to this Agreement. The expressions “herein”, “hereof”, “hereto”, “hereunder” and “hereby”, as well as similar expressions, refer to this Agreement as a whole and not to any particular article, Section, schedule or other parts.

1.2. “Approval Application” means, with respect to a Licensed Product in a particular jurisdiction, an application for approval, license, registration or authorization necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, an application for approval for such Licensed Product by the FDA, and with respect to the European Union, an application for approval for such Licensed Product by the European Commission.

1.3. “Breaching Party” means the Party that is believed by the other Party to be in material breach of this Agreement.

1.4. “Business Day” means any day other than a Saturday, a Sunday or a day on which banks in [ ] [1] are authorized or obligated by applicable law or executive order to close.

1.5. “Calendar Quarter” means the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31.

1.6. “Calendar Year” means each successive period of twelve (12) months commencing on January 1 and ending on December 31.

1.7. “cGMP” means the Current Good Manufacturing Practice regulations as defined by the FDA or foreign equivalent Regulatory Authority.

1.8. “cGCP” means the Good Clinical Practice regulations as defined by the FDA or foreign equivalent Regulatory Authority.

1.9. “cGLP” means the Good Laboratory Practice regulations as defined by the FDA or foreign equivalent Regulatory Authority.

1.10. “Claims” means any claim, demand, suit, action, investigation, proceeding, governmental action or cause of action of any kind or character (in each case, whether civil, criminal, investigative or administrative), known or unknown, under any theory, including those based on theories of contract, tort, statutory liability, strict liability, employer liability, premises liability, products liability or breach of warranty.

1.11. “Clinical Trial” means a study in humans that is designed to generate data in support of an Approval Application.

[1] Locations TBD at Opt-In

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.12. “Combination Product” means any product that comprises a Licensed Product and at least one of the following, either packaged together or in the same formulation: a drug delivery device or a clinically active therapeutic, prophylactic or diagnostic ingredient or component that is not a Licensed Product.

1.13. “Commercialize” or “Commercialization” means to market, promote, distribute, offer for sale, sell, have sold, import, export or otherwise commercialize a product, to conduct activities, other than, Development and Manufacturing, in preparation for the foregoing activities, including obtaining Price Approval, and to conduct Clinical Trials and post-Marketing Approval studies. When used as a noun, “Commercialization” means any and all activities involved in Commercializing.

1.14. “Commercially Reasonable Efforts” means with respect to the efforts to be expended by any Person, with respect to any objective, reasonable, diligent and good faith efforts to accomplish such objective. With respect to any objective relating to the Development or Commercialization of a Licensed Product, “Commercially Reasonable Efforts” means that level, caliber and quality of efforts and resources reasonably and normally used (as to Company) by biopharmaceutical companies with adequate financing and resources, or (as to Licensee) by biopharmaceutical companies of similar size to Licensee with adequate financing and resources and as Licensee would normally use to accomplish a similar objective under similar circumstances, as to a potential or actual product that is important to such Person’s overall strategy or objectives, taking into account, without limitation, with respect to each Licensed Product, (a) issues of safety, efficacy, Licensed Product profile, (b) likelihood of receiving Marketing Approval for the applicable Licensed Product, (c) potential to accelerate the development and regulatory timelines for the Licensed Product, (d) regulatory structure involved, (e) Regulatory Authority-approved labeling, (f) market potential of the Licensed Product, (g) potential benefit of the Licensed Product to patients with the relevant indication, (h) competitiveness in the marketplace, (i) proprietary position and (j) other relevant scientific, technical and business factors deemed relevant by the applicable Party. “Commercially Reasonable Efforts” shall be determined on a country-by-country basis and activities that are conducted in one country that have an effect on achieving the relevant objective in another country shall be considered in determining whether Commercially Reasonable Efforts have been applied in such other countries.

1.15. “Control” means with respect to any Know-How or Patent or other data, information or Materials, possession of the ability by a Party or its Affiliate(s) (whether by sole or joint ownership, license or otherwise) to grant, without violating the terms of any agreement with a Third Party, a license, access or other right in, to or under such Know-How or Patent or other data, information or Materials.

1.16. “Controlling Party” means the Party having the right under this Agreement to conduct and control (i) the Prosecution and Maintenance, (ii) challenges against validity and unenforceability or patentability of Intellectual Property and/or (iii)

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

any Claim or action for enforcement directed to an actual or alleged infringement or misappropriation of Intellectual Property, in all cases, as and for so long as such Party maintains such right.

1.17. "Cover," "Covering" or "Covers" means, as to a Licensed Product and Patent, that, in the absence of a license granted under, or ownership of, such Patent, the making, using, keeping, selling, offering for sale or importation of such Licensed Product would infringe such Patent or, as to a pending claim included in such Patent, the making, using, selling, offering for sale or importation of such Licensed Product would infringe such Patent if such pending claim were to issue in an issued patent without modification.

1.18. "CRISPR/Cas Technology" means clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) protein system that comprises (a) at least one guide RNA element that is complementary to a Target, wherein said guide RNA element can be a guide RNA or a polynucleotide(s) encoding such guide RNA, and (b) a nuclease element, wherein said nuclease element is a Cas nuclease protein.

1.19. "Develop" or "Development" means, with respect to a Licensed Product, all clinical and non-clinical research and development activities conducted for such Licensed Product, including toxicology, pharmacology test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, Clinical Trials (other than post-Marketing Approval Clinical Trials), regulatory affairs, pharmacovigilance, Clinical Trial regulatory activities and obtaining and maintaining Regulatory Approval. When used as a verb, "Develop" or "Developing" means to engage in Development.

1.20. "EMA" means the European Medicines Agency and any successor entity thereto.

1.21. "European Commission" means the European Commission or any successor entity that is responsible for granting Marketing Approvals authorizing the sale of pharmaceuticals in the European Union.

1.22. "European Union" or "EU" means each and every country or territory that is officially part of the European Union.

1.23. "Exploit" or "Exploitation" means to make, have made, import, export, use, sell, have sold, and/or offer for sale or otherwise dispose of.

1.24. "FDA" means the United States Food and Drug Administration and any successor agency thereto.

1.25. "Field" means [ ][2].

2 TBD at time of Opt-In

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.26. “First Commercial Sale” means, on a country-by-country basis, the first invoiced sale of Licensed Product by a Licensee, its Affiliates or Sublicensees to a non-Sublicensee Third Party in any country after grant of a Marketing Approval in the applicable country or jurisdiction. For the avoidance of doubt, sales or supply of Licensed Product as samples, for test marketing, to patients for compassionate use, named patient use, Clinical Trials or other similar purposes shall not be considered a First Commercial Sale.

1.27. “GAAP” means United States generally accepted accounting principles, consistently applied, as in effect from time to time.

1.28. “Generic Products” means, with respect to a Licensed Product in a particular country, a product on the market in such country commercialized by any Third Party that is not a Sublicensee and that did not purchase such product in a chain of distribution that included any of Licensee or its Affiliates or Sublicensees, that (a) is approved by the applicable Regulatory Authority, under any then-existing laws and regulations in the applicable country pertaining to approval of generic or biosimilar biologic products, as a “generic” or “biosimilar” version of such Licensed Product, which approval uses such Licensed Product as a reference product and relies on or references information in the Approval Application for such Licensed Product or (b) is otherwise recognized by the applicable Regulatory Authority as a biosimilar or interchangeable product to such Licensed Product.

1.29. “Governmental Authority” means any court, agency, authority, department, regulatory body or other instrumentality of any government or country or of any national, federal, state, provincial, regional, county, city or other political subdivision of any such government or any supranational organization of which any such country is a member.

1.30. “IFRS” means International Accounting Standards/International Financial Reporting Standards of the International Accounting Standards Board as amended from time to time.

1.31. “IND” means with respect to each Licensed Product in a Field, an Investigational New Drug Application filed with the FDA with respect to such Licensed Product, as described in the FDA regulations, including all amendments and supplements to the application, and any equivalent filing with any Regulatory Authority outside the United States.

1.32. “Intellectual Property” means (i) patents (including utility, design, plant, utility model, reissues, re-examination, and patents of addition), patent applications (filed, unfiled or being prepared), records of invention, (ii) trademarks (registered or unregistered), trademark applications, trade names, copyrights (registered or unregistered), copyright applications, mask works, service marks (registered or unregistered), service mark applications, database rights (registered or unregistered), all together with the goodwill associated with such marks or names, (iii) trade secrets, technology, inventions, Know-How, processes and confidential

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

and proprietary information, including any being developed (including but not limited to designs, manufacturing data, design data, test data, operational data, and formulae), whether or not recorded in tangible form through drawings, software, reports, manuals or other tangible expressions, whether or not subject to statutory registration, anywhere, and all rights to any of the foregoing.

1.33. "Know-How" means data, results, pre-clinical and clinical protocols and data from studies and Clinical Trials, chemical structures, chemical sequences, information, inventions, know-how, formulas, trade secrets, techniques, methods, processes, procedures and developments, whether or not patentable; provided that Know-How does not include Patents claiming any of the foregoing.

1.34. "Knowledge" means with respect to Company, the actual knowledge of [ ][3]after having made reasonable inquiries of Company personnel and advisors that would reasonably be anticipated to have knowledge of facts relating to the relevant subject matter.

1.35. "Law" or "Laws" means all applicable laws, statutes, rules, regulations and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, agency or other body, domestic or foreign, including any applicable rules, regulations, guidelines, or other requirements of the Regulatory Authorities that may be in effect from time to time.

1.36. "Licensed Know-How" means any and all Know-How that Company Controls that is necessary or useful to Develop, Manufacture and Commercialize a Licensed Product in the Field in the Territory.

1.37. "Licensed Patents" means all Patents that Company Controls that are necessary or useful to Develop, Manufacture and Commercialize a Licensed Product in the Field in the Territory.

1.38. "Licensed Product" means [ ][4].

1.39. "Licensed Technology" means, the Licensed Know-How and the Licensed Patents.

1.40. "Major Market Countries" means [ ][5].

1.41. "Manufacture" or "Manufacturing" means activities directed to making, having made, producing, manufacturing, processing, filling, finishing, packaging, labeling, quality control testing and quality assurance release, shipping or storage of a product.

3 TBD at Opt-In
4 TBD at Opt-In
5 TBD at time of Opt-In

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.42. “Marketing Approval” means, with respect to a Licensed Product in a particular jurisdiction, all approvals, licenses, registrations or authorizations necessary for the Commercialization of such Licensed Product in such jurisdiction, including, with respect to the United States, approval of an Approval Application for such Licensed Product by the FDA and with respect to the European Union, approval of an Approval Application for such Licensed Product by the European Commission.

1.43. “Materials” means all biological materials or chemical compounds provided by Company for use by Licensee pursuant to this Agreement.

1.44. [6]“Net Sales” means the gross invoiced sales amount of Licensed Products billed by Licensee or its Affiliates or Sublicensees, in each case to independent Third Parties, including to distributors and end-users, for the sale or other commercial disposition of Licensed Products in the Territory, less the following items as applicable to such Licensed Products to the extent actually taken or incurred with respect to such sale (the “Permitted Deductions”) and all in accordance with standard allocation procedures, allowance methodologies and accounting methods consistently applied, in accordance with GAAP/IFRS as appropriate (except as otherwise provided below):

(a) credits or allowances for returns, rejections or recalls (due to spoilage, damage, expiration of useful life or otherwise), retroactive price reductions or billing corrections;

(b) separately itemized invoiced freight, postage, shipping and insurance, handling and other transportation costs;

(c) sales, use, value added and other similar taxes (excluding income taxes), tariffs, customs duties, surcharges and other governmental charges levied on the production, sale, transportation, delivery or use of the Licensed Products in the Territory that are incurred at time of sale or are directly related to the sale;

(d) any quantity, cash or other trade discounts, rebates, returns, refunds, charge backs, fees, credits or allowances (including amounts incurred in connection with government-mandated rebate and discount programs, Third Party rebates and charge backs, and hospital buying group/group purchasing organization administration fees and payor organizations), distribution fees, sales commissions paid to Third Parties, retroactive price reductions and billing corrections; and

(e) deductions for bad debts.

6 The specific deductions may need to be changed at the time of licensing based on changes in law, regulations, economic changes or accounting by Licensee.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

In the case of deductions for bad debts, the adjustment amount will be based on actual bad debts incurred and written off as uncollectible by Licensee in a quarter, net of any recoveries of previously written off bad debts from current or prior quarters.

Notwithstanding the foregoing, the following will not be included in Net Sales: (i) Licensee's transfer of Licensed Product to an Affiliate (unless such sale is a final sale), (ii) Licensed Product provided by Licensee or its Affiliate for administration to patients enrolled in clinical trials or distributed through a not-for-profit foundation at no or nominal charge to eligible patients and (iii) commercially reasonable quantities of Licensed Product used as samples to promote additional Net Sales.

Notwithstanding the foregoing, in the event a Licensed Product is sold as a Combination Product or together with one or more products for a single invoiced amount (in each case, a "Combination Sale"), the Net Sales amount for the Licensed Product sold in such a Combination Sale shall be that portion of the gross amount invoiced for such Combination Sale (less all Permitted Deductions) determined as follows:

Except as provided below, the Net Sales amount for a Combination Sale will equal the gross amount invoiced for the Combination Sale, reduced by the Permitted Deductions (the "Net Combination Sale Amount"), multiplied by the fraction A/(A+B), where A is the wholesale acquisition cost charged by Licensee, its Affiliates or Sublicensees, as applicable, in the country where such Combination Sale occurs, of the Licensed Product contained in the Combination Product if sold as a separate product in such country by Licensee, its Affiliates or Sublicensees, as applicable, and B is the aggregate of the wholesale acquisition cost charged by Licensee, its Affiliates or Sublicensees, as applicable, in such country, of such other products or active ingredients/components, as the case may be, included in the Combination Product if sold separately in such country by Licensee, its Affiliates or Sublicensees, as applicable.

In the event that Licensee, its Affiliates or Sublicensees sell the Licensed Product included in a Combination Sale as a separate product in a country, but do not separately sell all of the other products or active ingredients/components, as the case may be, included in such Combination Sale in such country, the calculation of Net Sales resulting from such Combination Sale shall be determined by multiplying the Net Combination Sale Amount by the fraction A/C where A is the wholesale acquisition cost charged by Licensee, its Affiliates or its Sublicensees, as applicable, in the country where such Combination Sale occurs, of the Licensed Product contained in the Combination Product if sold as a separate product in such country by Licensee, its Affiliates or its Sublicensees, as applicable, and C is the wholesale acquisition cost charged by Licensee, its Affiliates or its Sublicensees, as applicable, in such country for the entire Combination Sale.

In the event that Licensee, its Affiliates or its Sublicensees do not sell the Licensed Product included in a Combination Sale as a separate product in the country where such Combination Sale occurs, but do separately sell all of the other products or active ingredients/components, as the case may be, included in the Combination Sale in such country, the calculation of Net Sales resulting from such Combination Sale shall be determined by multiplying the Net Combination Sale Amount by the fraction (C-D)/C, where C is the wholesale acquisition cost charged by Licensee, its Affiliates or its Sublicensees, as applicable, in the

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

country where such Combination Sale occurs, of the entire Combination Sale, and D is the aggregate of the wholesale acquisition cost charged by Licensee, its Affiliates or Sublicensees, as applicable, in such country, of such other products or active ingredients/components, as the case may be, included in the Combination Product if sold separately in such country by Licensee, its Affiliates or its Sublicensees, as applicable.

If the calculation of Net Sales resulting from a Combination Sale in a country cannot be determined by any of the foregoing methods, the calculation of Net Sales for such Combination Sale shall be determined between the parties in good faith negotiations.

1.45. "Non-Breaching Party" means the Party that believes the other Party is in material breach of this Agreement.

1.46. "Out-of-Pocket Costs" means, with respect to a Party, costs and expenses paid by such Party to Third Parties (or payable to Third Parties and accrued in accordance with GAAP or IFRS), other than Affiliates or employees of such Party.

1.47. "Party" or "Parties" means, when used in singular, any signatory to this Agreement and any permitted successor or assign thereto.

1.48. "Patents" means the rights and interests in and to issued patents and pending patent applications and similar government-issued rights (e.g., utility models) protecting inventions in any country, jurisdiction or region (including inventor's certificates and utility models), including all priority applications, international applications, provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing.

1.49. "Patent Costs" means the reasonable fees and expenses paid to outside legal counsel, and filing, maintenance, disbursement and other reasonable Out-of-Pocket Costs paid to Third Parties, in connection with the Prosecution and Maintenance of Patents.

1.50. "Person" means any individual, partnership, limited partnership, limited liability company, joint venture, syndicate, sole proprietorship, company or corporation with or without share capital, unincorporated association, trust, trustee, executor, administrator or other legal personal representative or governmental body.

1.51. "Price Approval" means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.52. “Product Specific Patents” means any Patents within the Licensed Patents that only Cover one or more of the Licensed Products.

1.53. “Prosecution and Maintenance” or “Prosecute and Maintain” means, with regard to a Patent, the preparing, filing, prosecuting and maintenance of such Patent, as well as handling re-examinations and reissues with respect to such Patent, together with the conduct of interferences, the defense of oppositions and other similar proceedings with respect to the particular Patent. For clarification, Prosecution and Maintenance or Prosecute and Maintain will not include any other enforcement actions taken with respect to a Patent.

1.54. “Regulatory Approval” means the technical, medical and scientific licenses, registrations, authorizations and approvals (including approvals of Approval Applications, supplements and amendments, pre- and post- approvals, and labeling approvals) of any Regulatory Authority, necessary for the Development, clinical testing, commercial manufacture, distribution, marketing, promotion, offer for sale, use, import, export or sale of a pharmaceutical product in a regulatory jurisdiction, including Marketing Approval.

1.55. “Regulatory Authority” means, with respect to a country in the Territory, any national (e.g., the FDA), supra-national (e.g., the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Price Approvals for pharmaceutical products in such country or countries.

1.56. “Regulatory Filing” means, collectively: (a) all INDs, Approval Applications, establishment license applications, Drug Master Files, applications for designation as an “Orphan Licensed Product(s)” under the Orphan Drug Act, for “Fast Track” status under Section 506 of the FD&C Act (21 U.S.C. § 356) or for a Special Protocol Assessment under Section 505(b)(4)(B) and (C) of the FD&C Act (21 U.S.C. § 355(b)(4)(B)) and all other similar filings (including counterparts of any of the foregoing in any country or region in the Territory); (b) any applications for Regulatory Approval or Price Approval and other applications, filings, dossiers or similar documents submitted to a Regulatory Authority in any country for the purpose of obtaining Regulatory Approval or Price Approval from that Regulatory Authority; (c) all supplements and amendments to any of the foregoing; and (d) all data and other information contained in, and correspondence relating to, any of the foregoing.

1.57. “Residual Knowledge” means knowledge, techniques, experience and Know-How that are (a) reflected in any Information owned or Controlled by a Party and (b) retained in the unaided memory of any authorized representative of the other Party after having access to such Information. A Person’s memory will be considered to be unaided if the Person has not intentionally memorized the Information for the purpose of retaining and subsequently using or disclosing it. In no event, however, will Residual Knowledge include any knowledge, techniques, experience and Know-How to the extent (at any time, for such time) within the scope of any valid patent claim owned or Controlled by a Party.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.58. "Royalty Term" shall mean from the Effective Date until, on a country by country basis, the later of (i) until no Valid Claim of any issued patents in the Licensed Patents Covering a Licensed Product exists and (ii) ten years after the First Commercial Sale of Licensed Product.

1.59. "Sublicense" means, directly or indirectly, to sublicense, grant any other right with respect to, or agree not to assert, any licensed right under any Patent, Know-How or other Intellectual Property right. When used as a noun, "Sublicense" means any agreement to Sublicense.

1.60. "Sublicensee" means an Affiliate or Third Party, other than a distributor, to whom a licensee (or an Affiliate) sublicenses any of the rights granted to the Licensee during the Royalty Term of the Agreement.

1.61. "Target" means [ ]7.

1.62. "Territory" means all the countries of the world.

1.63. "Third Party" means any Person other than Company or Licensee or any Affiliate of either Party.

1.64. "United States" or "U.S." means the fifty states of the United States of America and all of its territories and possessions and the District of Columbia.

1.65. "Valid Claim" means a claim (a) of any issued, unexpired United States or foreign Patent, which will not, in the country of issuance, have been donated to the public, disclaimed, nor held invalid or unenforceable by a court of competent jurisdiction in an unappealed or unappealable decision, or (b) of any United States or foreign patent application, which will not, in the country in question, have been cancelled, withdrawn or abandoned. Notwithstanding the foregoing, on a country-by-country basis, a patent application pending for more than seven years, or ten years for filings in Japan, will not be considered to have any Valid Claim for purposes of this Agreement unless and until a patent meeting the criteria set forth in clause (a) above with respect to such application issues.

1.66. The following terms shall have the meanings defined in the section or schedule indicated.

Term	Where defined
Affected Party	Section 9.1
Combination Sale	Section 1.45
Company	First paragraph of this Agreement
Company Indemnified Party	Section 7.1

7 TBD at Opt-In

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Term	Where defined
Compelled Party	Section 9.1
Effective Date	First paragraph of this Agreement
Indemnified Party	Section 7.3
Indemnifying Party	Section 7.3
Information	Section 9.1
Liability	Section 7.1
Licensee	First paragraph of this Agreement
Licensee Indemnified Party	Section 7.2
Net Combination Sale Amount	Section 1.45
Patent Challenge	Section 8.2.2
Patent Coordinator	Section 5.2.2
Permitted Deductions	Section 1.45
Product Development and Commercialization Plan	Section 3.3
Requesting Party	Section 9.4
Reviewing Party	Section 9.4
Safety Data Exchange Agreement	Section 3.5.4
Specific Performance Milestone Event	Section 3.2.1
VAT	Section 4.3.4

ARTICLE 2.
LICENSE GRANT

2.1 **License Grant.**

2.1.1 **License.** Company hereby grants to Licensee an irrevocable (except as specified in Section 8.3.1(c)), royalty-bearing, worldwide, sublicenseable, license in and to the Licensed Technology, which right shall be exclusive, to make, have made, use, sell, keep, offer for sale and import Licensed Products in the Field in the Territory.

2.1.2 **Sublicenses.** Subject to the terms of this Agreement, Licensee may grant sublicenses through multiple tiers of sublicense to one or more Sublicensees of any and all rights granted to Licensee by Company hereunder. Each such Sublicense will be subject and subordinate to, and consistent with, the terms and conditions of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement and any terms of a Third Party agreement with Company to the extent Licensed Technology is covered by such Third Party agreement. Notwithstanding the grant of any Sublicense, Licensee shall remain primarily liable to Company for the performance of all of Company's obligations under, and Company's compliance with all provisions of, this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.1.3 **License Conditions; Limitations.** All rights and obligation hereunder are subject to and limited by all applicable terms and conditions set forth in any terms of a Third Party agreement with Company to the extent Licensed Technology is covered by such Third Party agreement.

2.2 **Technology Transfer.**

2.2.1 **Know-How.** No later than 30 days after the Effective Date, Company shall make available and deliver to Licensee all documented Licensed Know-How in Licensee's possession that has not previously been provided hereunder. To assist with the transfer of such Licensed Know-How, Company will make its personnel reasonably available to Licensee during normal business hours to transfer such Know-How under this Section 2.2.1.

2.2.2 **Transfer of Manufacturing Know-How and Materials.** Without limiting Company's obligations under Section 2.2.1, within 30 days following the Effective Date, and thereafter, promptly following Licensee's request, Company will, or will cause the applicable Third Party (including any contract manufacturing organization engaged by Company to Manufacture the Licensed Product) to, transfer to Licensee (a) all Licensed Know-How that is necessary or useful to enable the Manufacture of the Licensed Product, and not previously transferred to Licensee under this Agreement, by providing copies or samples of relevant documentation, Materials and other embodiments of such Licensed Know-How, and by making available its, or the applicable Third Party's, qualified technical personnel on a reasonable basis to consult with Licensee with respect to such Licensed Know-How, (b) any Materials used by Company or its Affiliates or subcontractors in the Manufacture of such Licensed Product; (c) any contracts between Company and a Third Party that relate solely to the Manufacture of the Licensed Product; (d) list of all suppliers and contact information for any suppliers of raw material to Manufacture the Licensed Product.

2.2.3 **Transfer of Regulatory Filings and Regulatory Approvals.** Company will, and hereby does, assign to Licensee any and all Regulatory Filings, Regulatory Approvals or any other rights or permissions granted by any Regulatory Authority to Licensee related to the Licensed Product that exist on the Effective Date and to the extent

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

they can be transferred. If any Regulatory Filings or Regulatory Approvals cannot be transferred Company will and does hereby grant the right to Licensee to reference any such Regulatory Filings and Regulatory Approvals. Further, Company will take all actions and provide all assistance reasonably requested by Licensee to effect the assignments in this Section 2.2.3. To the extent such Regulatory Filings, Regulatory Approvals or any other rights or permissions granted by any Regulatory Authority cannot be transferred in a reasonable time, Company will maintain them for the benefit of the Licensee.

2.3 **No Implied Licenses.** All rights in and to Licensed Technology not expressly licensed to Licensee under this Agreement are hereby retained by Company. Except as expressly provided in this Agreement, Company will not be deemed by estoppel or implication to have granted Licensee any licenses or other right with respect to any intellectual property.

ARTICLE 3.
DEVELOPMENT, MANUFACTURING AND COMMERCIALIZATION

3.1 **Responsibility.** Licensee shall have sole responsibility for Developing, Manufacturing and Commercializing Licensed Products, at its sole cost and expense, including, but not limited to, responsibility for one hundred percent (100%) of all amounts owed by Company to Third Parties as the result of Licensee's (or its Affiliate's or Sublicensee's) Development, Manufacture or Commercialization of the Licensed Product. If any amounts are owed to Third Parties as described hereunder, but such amounts are not solely attributable to the Development, Manufacture or Commercialization of the Licensed Product by Licensee, Licensee shall not be responsible for one hundred percent (100%) of all amounts owed by Company to such Third Parties if Company or other contractors or licensees of Company also utilize the relevant Third Party assets or intellectual property for which the amounts are due. In such event, Licensee's share of the amounts owed to Third Parties shall be reduced pro rata depending on the number of other users. By way of example, if the Third Party assets are utilized by Licensee and Company Licensee's share of the costs shall be fifty percent (50%), and if Company utilizes the Third Party assets and appoints another licensee that utilizes the assets, Licensee's share shall be thirty three and one third percent (33.33%).

3.2 **Licensee Diligence.**

3.2.1 **Development Diligence.** Licensee (acting directly or through one or more Affiliates or Sublicensees) will use Commercially Reasonable Efforts to Develop and obtain at least one Marketing Approval for the Licensed Product in each [Major

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Market Country].[8] In addition, Licensee will use Commercially Reasonable Efforts to achieve the specific performance milestone events set forth in the table below ("Specific Performance Milestone Events") within the timeline stated below; provided, however, if regulatory, Development or other significant issues arise that are outside of Licensee's reasonable control that impede achievement of any such Specific Performance Milestone Event on the stated timeline, the Parties will meet and discuss in good faith and revise the date by which the applicable Specific Performance Milestone Event will be achieved.

Specific Performance Milestone Events	**Expected Milestone Date**

3.2.2 **Commercial Diligence.** Licensee (acting directly or through one or more Affiliates or Sublicensees) will use Commercially Reasonable Efforts to Commercialize, including seeking Price Approval on appropriate terms, the Licensed Product in each Major Market Country where Licensee or its designated Affiliates or Sublicensees receive Marketing Approval for such Licensed Product.

3.2.3 **Material Breach.** Licensee's failure to meet its diligence obligations under this Section 3.2 shall be deemed a material breach and subject to termination under Section 8.2.2.

3.3 **Product Development and Commercialization Plan.** Attached as Schedule 3.3 is an initial Product Development and Commercialization Plan[9] prepared by Licensee. The Product Development and Commercialization plan sets forth in reasonable detail (which detail shall be at least sufficient for Company to evaluate

8 TBD at Opt-In.
9 TBD at Opt-In.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Licensee's compliance with its obligations under this Agreement) Licensee's plans for (a) the Development of the Licensed Product through Clinical Trials, (b) the Development of each Licensed Product through Marketing Approval and (c) starting upon Marketing Approval for a Licensed Product and continuing thereafter until the expiration of the applicable Royalty Term, Commercialization for the Licensed Product, as appropriate for the stage of the Licensed Product, including a launch plan for each Major Market Country (a "**Product Development and Commercialization Plan**"). Licensee will update such plan no less than once per Calendar Year so that the Product Development and Commercialization Plan is an accurate reflection of Licensee's then-current plans with respect to the Development and Commercialization of the Licensed Product and Licensee will provide such updates to Company for its review.

3.4 **Applicable Laws.** Each Party will, and will require its Affiliates, Sublicensees and subcontractors to, comply with all applicable Law in its and their Development, Manufacture and Commercialization of the Licensed Product, including where appropriate cGMP, cGCP and cGLP (or similar standards).

3.5 **Regulatory Matters; Safety Data Exchange Agreement.**

3.5.1 **Responsibilities.** Licensee or its designated Affiliates and Sublicensees will have the sole authority to prepare and file Regulatory Filings, each in its own name, and applications for Regulatory Approval and Price Approval for the Licensed Products, and will have the sole responsibility for communicating with any Regulatory Authority both prior to and following Regulatory Approval and Price Approval, including all communications and decisions with respect to (a) pricing of Licensed Products and (b) the negotiation of Licensed Product pricing with Regulatory Authorities and other Third Parties.

3.5.2 **Class Claims.** To the extent Licensee intends to make any claims in a Licensed Product label or Regulatory Filing that are class generic to CRISPR/Cas Technology, or any other Licensed Technology included in a Licensed Product, Licensee will provide such claims and Regulatory Filings to Company in advance and will consider in good faith any proposals and comments made by Company.

3.5.3 **Ownership.** Ownership of all right, title and interest in and to any and all Regulatory Filings, Regulatory Approvals and Price Approvals directed to a Licensed Product in each country of the Territory will be held in the name of Licensee, its Affiliate, designee or Sublicensee.

3.5.4 **Pharmacovigilance.** The Parties will negotiate and enter into a separate safety data exchange agreement (a "**Safety Data**

Exchange Agreement") within three (3) months of the Effective Date. The Safety Data Exchange Agreement will set forth guidelines and procedures for the receipt, investigation, recording, review, communication, reporting and exchange between the Parties of adverse event reports (which, for purposes of information exchange between the Parties, will include adverse events and serious adverse events, and any other information concerning the safety of the Licensed Products and, with respect to information provided by Company, concerning the safety of products containing a gene editing system (including any system employing CRISPR/CAS Technology) or a product made using such gene editing system).

3.6 **Commercialization.**

3.6.1 **General.** Licensee will have sole and exclusive control over all matters relating to the Commercialization of Licensed Products subject to compliance with this Agreement and applicable Law.

3.6.2 **Branding.** Licensee or its designated Affiliates or Sublicensees will select and own all trademarks used in connection with the Commercialization of the Licensed Products. The Company will not use nor seek to register, anywhere in the world, any trademark that is confusingly similar to any trademark used by or on behalf of the Licensee, its Affiliates or Sublicensees in connection with the Licensed Product. Any existing trademark that is owned by the Company and that is specific to the Licensed Product shall be licensed or assigned to Licensee promptly after the Effective Date.

3.7 **Manufacturing.** Licensee will have the exclusive right to Manufacture and supply the Licensed Product itself or through one or more Affiliates or Third Parties selected by Licensee in its reasonable discretion.

ARTICLE 4.
FINANCIAL PROVISIONS[10]

4.1 **Milestone Payments.**

4.1.1 **Development Milestones.** Licensee will pay Company the milestone payments set forth in this Section 4.1.1 with respect to the Licensed Product, whether such milestone event is achieved by Licensee, its respective Affiliates or any Sublicensees. Each milestone payment set forth below, is

10 The specific payments and conditions of payment as specified in this Article may need to be changed at the time of licensing based on changes in law, regulations or accounting by Licensee.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

payable only once per Licensed Product, regardless of the number of times the Licensed Product achieves such milestone event.

Milestone Number	Milestone Event	Milestone Payment

4.1.2 **Commercial Milestones.** Licensee will pay the Company the milestone payments set forth in this Section 4.1.2, whether such milestone event is achieved by Licensee or its Affiliates or any of their Sublicensees. Each milestone payment set forth below, is payable only once per Licensed Product, regardless of the number of times the Licensed Product achieves such milestone event.

Milestone Number	Milestone Event	Milestone Payment

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.1.3 **Notice; Payment; Skipped Milestones.** Licensee will provide Company with written notice upon the achievement of each of the milestone events set forth in Section 4.1.1 or 4.1.2, such notice to be provided, (a) with respect to milestones under Section 4.1.1, within 30 days after achievement, and (b) with respect to milestones under Section 4.1.2, on or prior to the date of delivery of the royalty report in accordance with Section 4.2.5 for the Calendar Quarter in which such milestone is first achieved. Following receipt of such notice, Company will promptly invoice Licensee for the applicable milestone. The milestones numbered [ ] as set forth in Section 4.1.1 are intended to be successive; if the Licensed Product is not required to undergo the event associated with any such milestone event, such skipped milestone will be deemed to have been achieved upon the achievement by such Licensed Product of the next successive milestone event. Payment for any such skipped milestone that is owed in accordance with the provisions of the foregoing sentence with respect to a given Licensed Product will be due concurrently with the payment for the next successive milestone event by such Licensed Product, it being agreed that if a Licensed Product is not required to undergo the milestone numbered [ ] the corresponding payment will be made upon the first to occur of the milestones numbered [ ].

4.2 **Royalties.**

4.2.1 **Royalty Rates.** Subject to Sections 4.2.3 and 4.2.4, Licensee will pay Company royalties based on the aggregate Net Sales of

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

each Licensed Product sold by Licensee, its Affiliates or Sublicensees in the Field in the Territory during a Calendar Year at the rates set forth in the table below. The obligation to pay royalties will be imposed only once with respect to the same unit of a Licensed Product.

Product	Royalty Rate

4.2.2 **Royalty Term.** Licensee will pay royalties to Company under this Section 4.2 on a Licensed Product-by-Licensed Product and a country-by-country basis during the Royalty Term. Upon the expiration of the Royalty Term for the Licensed Product in a given country, the licenses granted herein with respect to such Licensed Product will become fully-paid, perpetual and irrevocable.

4.2.3 **Reduction for Generic Competition.** If one or more Generic Products with respect to the Licensed Product is marketed and sold in a given country by one or more Third Parties during any Calendar Quarter during the Royalty Term and the number of units of such Licensed Product sold during such Calendar Quarter have decreased by 50% or more relative to average quarterly sales (by unit) of such Licensed Product in such country during the four Calendar Quarters immediately prior to the Calendar Quarter during which such Generic Product(s) was first marketed and sold in such country, then the royalty rate for such Licensed Product in such country, on a country-by-country basis, will thereafter be reduced to 50% of the applicable royalty rate set forth in Section 4.2.1 for so long as such reduction in units sold persists.

4.2.4 **Third Party Licenses.** If Licensee reasonably believes that it must enter an agreement with a Third Party and pay a royalty to avoid Patent infringement, then Licensee may deduct from the royalties payable to Company under this Section 4.2 50% of any royalties paid by Licensee to such Third Party; *provided*, *however*, that in no event will the royalties that would otherwise

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

be payable to Company, as reduced by Section 4.2.3 be reduced by more than 50% in any given Calendar Quarter as a result of any deduction under this Section 4.2.4; and *provided further*, that Licensee will be entitled to carry forward to subsequent Calendar Quarters any amounts with respect to which Licensee would have been entitled to make a deduction pursuant to this Section 4.2.4 but is unable to take such deduction pursuant to the first proviso in this Section 4.2.4.

4.2.5 **Royalty Reports.** During the Royalty Term, following the First Commercial Sale of a Licensed Product giving rise to Net Sales, within 45 days after the end of each Calendar Quarter, Licensee will deliver a report to Company specifying on a Licensed Product-by-Licensed Product and country-by-country basis: (a) gross sales in the relevant Calendar Quarter, (b) Net Sales in the relevant Calendar Quarter; (c) a summary of the then-current exchange rate methodology then in use by Licensee, and (d) royalties payable on such Net Sales. Following receipt of such report, Company shall promptly invoice Licensee for all royalty payments due under this Section 4.2 for each Calendar Quarter.

4.3 **Payment Method; Currency.**

4.3.1 Payments will only be made after receipt of a properly itemized invoice. All invoices shall be paid within 30 days from the date of receipt =. Each invoice for payments shall be sent to: [ ], mentioning such other information required and as may be amended and/or provided by Licensee to Company from time to time.

4.3.2 All payments under this Agreement will be paid in [11][ ], by wire transfer to the following bank account, or to such other bank account specified in writing by Company to Licensee at least 15 Business Days prior to due date of payment:

Account Holder:	[ ]
Account No.:	[ ]
Bank Code:	[ ]
SWIFT (BIC):	[ ]
IBAN:	[ ]

4.3.3 If any amounts that are relevant to the determination of amounts to be paid under this Agreement or any calculations to be performed under this Agreement are denoted in a currency other than [12][ ], then such amounts will be converted to their

11 TBD at time of license
12 TBD at time of license

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

[13][ ] equivalent using Licensee's then-current standard procedures and methodology, including its then-current standard exchange rate methodology for the translation of foreign currency expenses into [14][ ]or, in the case of Sublicensees, such similar methodology, consistently applied.

4.3.4 All payments are exclusive of Value Added Tax ("VAT"). If VAT is legally owed by the Company, VAT applies and will be invoiced additionally by the Company and has to be paid by the Licensee after receipt of a correct invoice, which meets all legal requirements according to the applicable VAT-law.

4.3.5 All payments not made by ten (10) days after the due dates set out in this Agreement shall be subject to late payment interest at the one (1) month [currency] LIBOR rate, currently published on Reuters screen <LIBOR01>, fixed two Business Days prior to the due date and reset to the prevailing one (1) month LIBOR rate at monthly intervals thereafter, plus a premium of one (1) percentage point (or the maximum applicable legal rate of interest if lower). Interest shall be calculated based on the actual number of days in the interest period divided by 360 and shall be calculated from the due date (inclusive) until the date of payment (exclusive).

4.4 **Withholding Tax.** The Parties agree to cooperate with one another and use reasonable efforts to reduce or eliminate tax withholding or similar obligations in respect of royalties, milestone payments, and other payments made by Licensee to the Company under this Agreement. Any Party required to make a payment under this Agreement shall be entitled to deduct and withhold from the amount payable the tax for which the paying Party is liable under any provision of applicable tax law. No deduction shall be made or a reduced amount shall be deducted if the paying Party is timely furnished by payee with all documents required for the application of a zero or reduced rate according to any applicable bilateral income tax treaty. Any withheld tax shall be treated as having been paid by paying Party to payee for all purposes of this Agreement, provided that each Party shall provide the other with reasonable assistance to enable the recovery, as permitted by applicable Laws, of such withholding taxes, such recovery to be for the benefit of the Party bearing such withholding tax. Paying Party shall timely forward the tax receipts certifying the payments of withholding tax on behalf of payee. Any assignment of this Agreement by paying Party which causes a higher withholding tax rate than would be applicable without the assignment shall be borne by paying Party. If paying Party fails to deduct withholding tax but is still required by applicable tax law to pay withholding tax on account of payee to the tax authorities, payee shall assist paying Party with regard to all procedures required in order to obtain reimbursement by tax authorities or, in case tax authorities will not reimburse withholding tax to paying Party, payee will immediately refund the tax amount.

13 TBD at time of license
14 TBD at time of license

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.5 **Records.** During the Royalty Term and for one year thereafter, Licensee will keep and maintain accurate and complete records regarding Net Sales during the three preceding Calendar Years. Upon reasonable prior written notice from the Company, Licensee will permit an independent certified public accounting firm of internationally recognized standing, selected by the Company and reasonably acceptable to the Licensee, to examine the relevant books and records of Licensee and its Affiliates, as may be reasonably necessary to verify the royalty reports submitted by Licensee in accordance with Section 4.2.5. An examination by the Company under this Section 4.5 will occur not more than once in any Calendar Year and will be limited to the pertinent books and records for any Calendar Year ending not more than 36 months before the date of the request and the audit shall not cover any time period previously audited. The accounting firm will be provided access to such books and records at Licensee's facility or facilities where such books and records are normally kept and such examination will be conducted during Licensee's normal business hours. Licensee may require the accounting firm to sign a customary non-disclosure agreement before providing the accounting firm access to its facilities or records. Upon completion of the audit, the accounting firm will provide both the Company and Licensee a written report disclosing whether the reports submitted by Licensee are correct or incorrect and the specific details concerning any discrepancies. No other information will be provided to the Company. If the report or information submitted by Licensee results in an overpayment, Company will promptly pay such overpaid amount to the Licensee. If the report or information submitted by Licensee results in an underpayment, Licensee will promptly pay such amount to the Company, and, if, as a result of such inaccurate report or information, such underpayment amount is more than five percent of the amount that was owed Licensee will reimburse the Company for the reasonable expense incurred by the Company in connection with the audit.

ARTICLE 5.
INTELLECTUAL PROPERTY MATTERS

5.1 **Ownership.**

5.1.1 **Licensed Patents.** Subject to the rights and licenses granted herein, the Licensed Patents shall be owned by the Company.

5.2 **IP Prosecution and Maintenance**.

5.2.1 Company shall have the first right (but not the obligation) to be the Controlling Party for all aspects of the Prosecution and Maintenance with respect to the Licensed Patents. Company will use Commercially Reasonable Efforts to Prosecute and Maintain such Licensed Patents. Company will notify Licensee

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

of all material developments and all steps to be taken in connection with the Prosecution and Maintenance of the Licensed Patents and provide Licensee with copies of all material filings or responses to be made to the patent authorities with respect to the Licensed Patents and all other material submissions and correspondence with any patent authorities regarding the Licensed Patents in sufficient time to allow for review and comment by Licensee. Licensee will offer its comments or proposals, if any, promptly, and Company will consider in good faith such comments and proposals. Company shall not abandon any Product Specific Patents without providing prior written notice to Licensee of Company's intent to abandon a Product Specific Patent. Upon receipt of such notice, Licensee shall have the right to take over Prosecution and Maintenance of the applicable Product Specific Patent. For any Patents which Licensee takes over Prosecution and Maintenance, Company shall assign such Patents to Licensee and Licensee shall not owe any further royalties associated with such Patents.

5.2.2 **Patent Coordinators.** Each Party will appoint a patent coordinator reasonably acceptable to the other Party (each, a "**Patent Coordinator**") to serve as such Party's primary liaison with the other Party on matters relating to the Prosecution and Maintenance and enforcement of Licensed Patents. The Patent Coordinators will meet in person or by means of telephone or video conference at least once each Calendar Quarter during the Royalty Term of this Agreement. Each Party will provide the other Party written notice of its Patent Coordinator and may replace its Patent Coordinator at any time by providing notice in writing to the other Party.

5.2.3 **Patent Costs.** As between the Parties, Patent Costs arising after the Effective Date for Licensed Patents will be borne by the Licensee unless such rights are also licensed to a Third Party, then Licensee shall pay a pro rata share with such Third Parties.

5.2.4 **Defense of Claims Brought by Third Parties.** If a Third Party initiates a proceeding against a Party claiming a Patent owned by or licensed to such Third Party is infringed by the Development, Manufacture or Commercialization of a Licensed Product, each Party that is named as a defendant in such proceeding will have the right to defend itself in such proceeding. The other Party will reasonably assist the defending Party in defending such proceeding and cooperate in any such litigation at the request and expense of the defending Party. The defending Party will provide the other Party with

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

prompt written notice of the commencement of any such proceeding and will keep the other Party apprised of the progress of such proceeding and will promptly furnish the other Party with a copy of each communication relating to the alleged infringement that is received by such Party. If all Parties are named as defendants in any proceeding, all Parties may defend such proceeding and the Parties will reasonably cooperate with respect to such defense.

5.3 **Duty to Notify of Infringement.** If a Party learns of infringement, unauthorized use, misappropriation or threatened infringement by a Third Party, or any declaratory judgment action or any other action or proceeding alleging invalidity, unenforceability or non-infringement with respect to any Licensed Patents, such Party will promptly notify the other Party in writing and will provide the other Party with available information regarding such infringement.

5.3.1 Except as otherwise specifically provided herein, as between the Parties, Company shall have the sole right (but not the obligation) at its own expense to be the Controlling Party to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any Licensed Patents.

5.3.2 Licensee shall have the first right (but not the obligation) at its own expense to be the Controlling Party to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any Product Specific Patents within the Field. If Licensee declines to bring any action under this Section 5.3.2, Company shall have the right (but not the obligation), at its own expense, to be Controlling Party to bring any action for enforcement directed to an actual or alleged infringement or misappropriation of any such Product Specific Patents.

5.3.3 **Joinder.**

(a) If a Party initiates a proceeding in accordance with this Section 5.3 the other Party agrees to be joined as a party plaintiff where necessary and to give the first Party reasonable assistance and authority to file and prosecute the proceeding, provided that the Party bringing suit agrees to reimburse the other Party for all reasonable Out-of-Pocket Costs, damages and expenses (excluding reasonable attorneys' fees unless the Parties are unable to utilize the same legal counsel due to an ethical conflict), that it may incur in connection with such assistance or joinder, including any award of costs against it. Any costs, expenses or damages hereunder to be reimbursed by one Party to the other shall be paid by the owing Party within thirty (30) Business Days of receipt of an invoice therefor, including evidence that such costs, expenses or damages have been incurred. The Parties agree to use Commercially Reasonable Efforts to cause Third Parties to be joined as a party plaintiff where necessary.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) If one Party initiates a proceeding in accordance with this Section 5.3, the other Party may join such proceeding as a party plaintiff where necessary for such other Party to seek lost profits with respect to such infringement.

5.3.4 **Share of Recoveries.** Any damages or other monetary awards recovered with respect to a proceeding brought pursuant to this Section 5.3 will be shared as follows:

(a) First, an amount shall be remitted to the Parties to reimburse their respective reasonable costs and expenses (including reasonable attorneys' fees and costs) incurred in enforcing the claim; provided, however, if the amount recovered is insufficient to fully reimburse both Parties, the amount shall be applied pro-rata (based on the amounts paid by the Party in such action or suit) for their respective costs and expenses (including reasonable attorneys' fees and costs);

(b) To the extent the damages are a result of the misappropriation or infringement of Licensee's licensed rights or Intellectual Property licensed under this Agreement, then such remaining damages shall belong to Licensee and, if owed, it shall pay the royalty specified in Section 4.2 to Company; and to the extent the damages are the result of misappropriation or infringement of Company's Intellectual Property rights and are not the a result of the misappropriation or infringement of Licensee's rights or Intellectual Property licensed under this Agreement, then such remaining damages shall belong to Company.

5.3.5 **Patent Listing.** As between the Parties, Licensee will have the sole right, but not the obligation, to submit to all applicable Regulatory Authorities patent information pertaining to each applicable Licensed Product pursuant to 21 U.S.C. § 355(b)(1)(G) (or any amendment or successor statute thereto), any similar statutory or regulatory requirement enacted in the future regarding biologic products, or any similar statutory or regulatory requirement in any non-U.S. country or other regulatory jurisdiction.

5.3.6 **Patent Term Extension.** The Parties will cooperate with each other in obtaining patent term restoration in any country in the Territory under any statute or regulation equivalent or similar to 35 U.S.C. § 156, where applicable to a Licensed Product. Licensee will decide as to which patents from among the Licensed Patents will be extended (including, without limitation, by filing supplementary protection certificates and any other extensions that are now or in the future become available) if any. Company and Licensee will abide by

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Licensee's determination and cooperate, as reasonably requested by Company, in connection with the foregoing (including by providing appropriate information and executing appropriate documents).

ARTICLE 6.
REPRESENTATIONS AND WARRANTIES

6.1 **Representations and Warranties of Licensee.** Licensee hereby represents and warrants to Company, as of the Effective Date, that:

6.1.1 Licensee is duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof;

6.1.2 Licensee (a) has the requisite power and authority and the legal right to enter into this Agreement and to perform its obligations hereunder and (b) has taken all requisite action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;

6.1.3 Licensee has the requisite resources and expertise to perform its obligations hereunder;

6.1.4 the execution, delivery and performance of this Agreement by Licensee will not constitute a default under or conflict with any agreement, instrument or understanding, oral or written, to which either entity is a party or by which either entity is bound, or violate any law or regulation of any court, governmental body or administrative or other agency having jurisdiction over Licensee;

6.1.5 Licensee has obtained all necessary consents, approvals and authorizations of all Governmental Authorities and other Persons or entities required to be obtained by it in connection with the execution and delivery of this Agreement; and

6.1.6 Licensee will not employ (and, to Licensee's knowledge, will not use a contractor or consultant that has employed) any Person debarred by the FDA (or subject to a similar sanction of EMA or foreign equivalent), or any Person that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMA or foreign equivalent), in any capacity in connection with the Licensed Patents, Licensed Products.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

6.2 **Representations and Warranties of Company**[15]. Company hereby represents and warrants to Licensee, as of the Effective Date, that, except as otherwise set forth on Schedule 6.2:

6.2.1 Company is duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof;

6.2.2 Company has the requisite power and authority and the legal right to enter into this Agreement and to perform its obligations hereunder and (b) has taken all requisite action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;

6.2.3 This Agreement has been duly executed and delivered on behalf of Company, and constitutes a legal, valid and binding obligation, enforceable against it in accordance with the terms hereof;

6.2.4 Company has obtained all necessary consents, approvals and authorizations of all Governmental Authorities and other Persons or entities required to be obtained by Company in connection with the execution and delivery of this Agreement;

6.2.5 The execution, delivery and performance of this Agreement by Company will not constitute a default under or conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it is bound, or violate any law or regulation of any court, governmental body or administrative or other agency having jurisdiction over it;

6.2.6 Schedule 6.2.6 sets forth a true, correct and complete list of all Licensed Patents as of the Effective Date and indicates whether such Patent is owned by Company or licensed by Company and if so, identifies the licensor or sublicensor from which the Patent is licensed and whether such Licensed Patent is a Product Specific Patent and Company will update such Schedule 6.2.6 when any new Patents are added to the Licensed Technology;

6.2.7 Except as specified in Schedule 6.2.7, Company is the sole and exclusive owner of the Licensed Patents, all of which are free and clear

15 If Licensee is a party other than CRISPR or Bayer, Agreement to contain the following: During the term of this Agreement, until such time, if any the Licensed Product is no longer being clinically Developed, Commercialized or otherwise Exploited by or on behalf of Licensee, Company and its Affiliates shall not with or through a Third Party, Develop, Commercialize or otherwise Exploit any product comprising CRISPR/Cas Technology Targeting the same Target that is Targeted by such Licensed Product in the Field in any part of the Territory.

of any liens, charges and encumbrances, and, as of the Effective Date and except as specified in Schedule 6.2.7, no Third Party has any right, title or interest in the Territory in the Field with respect to the Licensed Technology existing at the Effective Date;

6.2.8 Company has the right and authority to grant the rights and licenses granted pursuant to the terms and conditions of this Agreement and Company has not granted any rights that remain in effect that conflict with the rights and licenses granted herein;

6.2.9 Except as set forth in Schedule 6.2.9, Company has no Knowledge that the making, using or selling of Licensed Products in the Field in the Territory would infringe any valid claims of the Patents of any Third Party in the Territory, nor does it have Knowledge that any Third Party is infringing or misappropriating any of the Licensed Technology;

6.2.10 To the Company's Knowledge, the Licensed Patents, are, or, upon issuance, will be, (i) valid and enforceable patents, (ii) no Claims are pending and no Third Party has threatened any Claims (and there is no basis therefor) that challenges the validity, enforceability, use, or ownership of such Patents (including by way of example through the institution or written threat of institution of interference, nullity or similar invalidity proceedings before the United States Patent and Trademark Office or any analogous foreign Governmental Authority) or (iii) is infringing any such Patents;

6.2.11 Except as disclosed on Schedule 6.2.11, Company is not a party to any contracts which require the payment of milestones or royalties by Licensee to Third Parties with respect to the use of the Licensed Patents or Development, Manufacturing or Commercialization of Licensed Products. For each contract disclosed on Schedule 6.2.11, Schedule 6.2.11 sets forth the conditions of and the milestone or the royalty rate to be paid by the Licensee as of the Effective Date;

6.2.12 Other than as set forth in Schedule 6.2.11, the use of the Licensed Patents, or the Development, Manufacturing and Commercialization of the Licensed Products as contemplated by the Licensee do not and to the best Knowledge of Company will not violate any license, misappropriate or infringe any Third Party's Intellectual Property rights or constitute unfair competition or unfair trade practices under applicable Laws. No Claims are pending or, to the Knowledge of Company, has any person threatened any Claims that use of the Licensed Patents, or the Development, Manufacturing and Commercialization of the Licensed Products misappropriates a Third Party's Intellectual Property rights; and

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

6.2.13 Company has not employed (and, to Company's Knowledge, has not used a contractor or consultant that has employed) any Person debarred by the FDA (or subject to a similar sanction of EMA or foreign equivalent), or any Person that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMA or foreign equivalent), in any capacity in connection with the Licensed Patents, Licensed Products.

6.3 **Disclaimer.** Except as otherwise expressly set forth in this Agreement, neither Party nor its Affiliates makes any representation or extends any warranty of any kind, either express or implied, including any warranty of merchantability or fitness for a particular purpose. Company and Licensee understand that each Licensed Product is the subject of ongoing Development and that neither Party can assure the safety, usefulness or commercial or technical viability of any Licensed Product.

ARTICLE 7.
INDEMNIFICATION; INSURANCE

7.1 **Indemnification by Licensee.** Licensee will indemnify, defend and hold harmless Company, each of its Affiliates, and each of its and its Affiliates' employees, officers, directors and agents (each, an "**Company Indemnified Party**") from and against any and all liability, loss, damage, expense (including reasonable attorneys' fees and expenses) and cost (collectively, a "**Liability**") that the Company Indemnified Party may be required to pay to one or more Third Parties to the extent resulting from or arising out of any claims of any nature arising out of (i) the Development, Manufacture, Commercialization or use of any Licensed Product by, on behalf of, or under the authority of, Licensee (other than by any Company Indemnified Party), (ii) Licensee's material breach of any of its representations, warranties or covenants set forth in this Agreement (iii) Licensee's fraud, (iv) Licensee's gross negligence or (v) Licensee's willful misconduct; provided however, Licensee shall not be required to indemnify Company for claims for which Company is required to indemnify Licensee pursuant to Section 7.2.

7.2 **Indemnification by Company.** Company will jointly and severally indemnify, defend and hold harmless Licensee, its Affiliates, Sublicensees, distributors and each of its and their respective employees, officers, directors and agents (each, a "**Licensee Indemnified Party**") from and against any and all Liabilities that the Licensee Indemnified Party may be required to pay to one or more Third Parties to the extent resulting from or arising out of Company's (i) material breach of any of its representations, warranties or covenants set forth in this Agreement (ii) fraud, (iii) gross negligence or (iv) willful misconduct; provided however, Company shall not be required to indemnify Licensee for claims for which Licensee is required to indemnify Company pursuant to Section 7.1.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.3 **Procedure.** Each Party will notify the other Party in writing if it becomes aware of a Claim for which indemnification may be sought hereunder. In case any proceeding (including any governmental investigation) will be instituted involving any Party in respect of which indemnity may be sought pursuant to this Article 7, such Party (the "**Indemnified Party**") will give prompt written notice of the indemnity claim to the other Party (the "**Indemnifying Party**") and provide a copy to the Indemnifying Party of any complaint, summons or other written or verbal notice that the Indemnified Party receives in connection with any such claim. An Indemnified Party's failure to deliver written notice will relieve the Indemnifying Party of liability to the Indemnified Party under this Article 7 only to the extent such delay is prejudicial to the Indemnifying Party's ability to defend such claim. Provided that the Indemnifying Party is not contesting the indemnity obligation, the Indemnified Party will permit the Indemnifying Party to control any litigation relating to such claim and the disposition of such claim by negotiated settlement or otherwise and any failure to contest prior to assuming control will be deemed to be an admission of the obligation to indemnify. The Indemnifying Party will act reasonably and in good faith with respect to all matters relating to such claim and will not settle or otherwise resolve such claim without the Indemnified Party's prior written consent which will not be withheld, delayed or conditioned unreasonably other than settlements only involving the payment of monetary awards for which the Indemnifying Party will be fully-responsible. The Indemnified Party will cooperate with the Indemnifying Party in such Party's defense of any claim for which indemnity is sought under this Agreement, at the Indemnifying Party's sole cost and expense.

7.4 **Insurance.** Each Party will maintain, at its cost, reasonable insurance against liability and other risks associated with its activities contemplated by this Agreement and will furnish to the other Party evidence of such insurance upon request. Notwithstanding the foregoing, Licensee may self-insure to the extent that it self-insures for its other activities.

7.5 **Limitation of Consequential Damages.** Except for (a) claims of a Third Party that are subject to indemnification under this Article 7, (b) claims arising out of a Party's willful misconduct, or (c) a Party's breach of Article 9, neither Party nor any of its Affiliates will be liable to the other Party or its Affiliates for any incidental, consequential, special, punitive or other indirect damages or lost or imputed profits or royalties, lost data or cost of procurement of substitute goods or services, whether liability is asserted in contract, tort (including negligence and strict product liability), indemnity or contribution, and irrespective of whether that Party or any representative of that Party has been advised of, or otherwise might have anticipated the possibility of, any such loss or damage.

ARTICLE 8.
TERM; TERMINATION

8.1 **Agreement Term; Expiration**. Unless earlier terminated pursuant to the other provisions of this Article 8, this Agreement is effective as of the Effective Date and will expire upon the end of the Royalty Term and Licensee shall have a fully paid up, irrevocable, worldwide license under Section 2.1.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

8.2 **Termination of the Agreement.**

8.2.1 **Licensee's Termination for Convenience.** Licensee will be entitled to terminate this Agreement as a whole, for convenience, by providing Company 90 days' written notice of such termination.

8.2.2 **Termination for Material Breach.**

(a) **Licensee's Right to Terminate.** If Company is in material breach of this Agreement, then Licensee may deliver notice of such material breach to Company. If the breach is curable, Company will have 90 days from the receipt of such notice to cure such breach, provided, however, if such breach is not reasonably curable within such 90-day period the time shall be extended so long as the Company is pursuing a cure in good faith. If either Company fails to cure such breach within such cure period or the breach is not subject to cure (a "**Company Breach Event**"), Licensee may terminate this Agreement by providing written notice to Company.

(b) **Company's Right to Terminate.**

(i) If Licensee is in material breach of this Agreement, then Company may deliver notice of such material breach to Licensee. If the breach is curable, Licensee will have 90 days following receipt of such notice to cure such breach provided, however, if such breach is not reasonably curable within such 90-day period the time shall be extended so long as Licensee is pursuing a cure in good faith. If Licensee fails to cure such breach within the cure period, or the breach is not subject to cure, Company in its sole discretion may terminate this Agreement, in its entirety, by providing written notice to Licensee.

(ii) If Licensee (A) commences or actively and voluntarily participates in any action or proceeding (including any patent opposition or re-examination proceeding), or otherwise asserts any claim, challenging or denying the validity or enforceability of any claim of any Patent that is licensed to Licensee under this Agreement or (B) actively and voluntarily assists any other Person in bringing or prosecuting any action or proceeding (including any patent opposition or re-examination proceeding) challenging or denying the validity or enforceability of any claim of any Patent that is licensed to Licensee under this Agreement

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(each of (A) and (B), a "**Patent Challenge**"), then, to the extent permitted by applicable Law, Company shall have the right, in its sole discretion, to give notice to Licensee that Company may terminate the license(s) granted under such Patent to Licensee 90 days following such notice, and, unless (i) Licensee withdraws or causes to be withdrawn all such challenge(s) if it has the power to unilaterally withdraw or cause to be withdrawn such challenge(s) or (ii) in the case of *ex-parte* proceedings, multi-party proceedings, or other Patent Challenges that Licensee does not have the power to unilaterally withdraw or cause to be withdrawn, Licensee ceases assisting any other party to such Patent Challenge and, to the extent Licensee is a party to such Patent Challenge, it withdraws from such Patent Challenge within such 90-day period, then Company shall have the right to terminate this Agreement by providing written notice thereof to Licensee. The foregoing right to terminate shall not apply with respect to any Patent Challenge where the Patent Challenge is made in defense of an assertion of the relevant Patent that is first brought by Company against Licensee. For the avoidance of doubt, any participation by Licensee or its employees in any claim, challenge or proceeding in response to a subpoena or as required under a pre-existing agreement between Licensee's employee(s) or consultant(s) and their prior employer(s) shall not constitute active and voluntary participation or assistance and shall not give rise to Company's right to terminate any license hereunder.

8.2.3 **Disputes Regarding Material Breach.** Notwithstanding the foregoing, if the Breaching Party disputes the existence, materiality, or failure to cure of any breach, and provides notice to the Non-Breaching Party of such dispute within the relevant cure period, the Non-Breaching Party will not have the right to terminate this Agreement in accordance with Section 8.2.2, unless and until it has been determined in accordance with Section [ ]that this Agreement was materially breached by the Breaching Party and the Breaching Party fails to cure such breach within 90 days (or during a longer period of time if such breach is not reasonably curable within such 90-day period, so long as the Non-Breaching Party is pursuing a cure in good faith) following such determination. It is understood and acknowledged that during the pendency of such dispute, all the terms and conditions of this Agreement will remain in effect and the Parties will continue to perform all of their respective obligations hereunder, including satisfying any payment obligations.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

8.2.4 **Termination for Insolvency.** If the Company or Licensee makes an assignment for the benefit of creditors, appoints or suffers appointment of a receiver or trustee over all or substantially all of its property, files a petition under any bankruptcy or insolvency act or has any such petition filed against it that is not discharged within 60 days of the filing thereof (each, an "**Insolvency Event**"), then the other Party may terminate this Agreement in its entirety effective immediately upon written notice to the non-terminating Party.

8.3 **Consequences of Termination of the Agreement.**

8.3.1 **In General.** If this Agreement is terminated by a Party in accordance with this Article 8 at any time and for any reason, the following terms will apply to any Licensed Product in any country that is the subject of such termination:

(a) Termination or expiration of this Agreement for any reason will be without prejudice to any rights or financial compensation that will have accrued to the benefit of a Party prior to such termination or expiration. Such termination or expiration will not relieve a Party from obligations that are expressly indicated to survive the termination or expiration of this Agreement;

(b) The following provisions of this Agreement will survive any expiration or termination of this Agreement: [ ]; [16]

(c) the applicable licenses granted by Company to Licensee under this Agreement will terminate and Licensee will cease all Development, Manufacture and Commercialization activities with respect to the applicable Licensed Products except to the extent an unlicensed Third Party can conduct such activities without violating Company's Intellectual Property rights;

(d) any permitted Sublicense of Licensee will, at the Sublicensee's option, survive such termination; *provided* that the Sublicensee is not in material breach of any of its obligations under such Sublicense. In order to effect this provision, at the request of the Sublicensee, Company will enter into a direct license with the Sublicensee on substantially the same terms as this Agreement (taking into account the scope of the licensee granted under such Sublicense); *provided* that Company will not be required to undertake obligations in addition to those required by this Agreement, and that Company's rights under such direct license will be consistent with its rights under this Agreement, taking into account the scope of the license granted under such direct license.

8.3.2 **Termination Except Other Than by Licensee For Cause.** Except with respect to any termination by Licensee under Section 8.2.2(a), in addition to the terms set forth in Section 8.3.1 (Consequences of Termination of this Agreement), the following additional terms will also apply:

(a) Licensee will and hereby does grant to Company a sublicensable, worldwide, non-exclusive license or sublicense, as the case may be, under all Intellectual Property Controlled by Licensee as of the effective date of such termination that Covers the Licensed Product solely as necessary to Develop, make, have made, use, sell, offer for sale, have sold, import and otherwise Commercialize the Licensed Product;

16 To be added prior to finalization at Opt-In

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) Licensee will transfer to Company for use with respect to the Development and Commercialization of the Licensed Product, any Know-How, data, results, regulatory information, and files in the possession of Licensee as of the date of such termination or reversion that relate solely to such Licensed Product;

(c) Licensee will transfer to Company, Licensee's possession and ownership of all Regulatory Filings and Regulatory Approvals solely relating to the Development, Manufacture or Commercialization of any terminated Licensed Product that is not subject to a then-effective Sublicense;

(d) Licensee will negotiate in good faith with Company on a non-exclusive, license under any trademark that is specific to a Licensed Product solely for use with such Licensed Product;

(e) Upon Company' written request pursuant to a mutually agreed supply agreement, Licensee will sell to Company any bulk API and finished drug product in Licensee's possession related to the Licensed Product that is the subject of the termination at the time of such termination, at a price equal to Licensee's then current cost basis at the time such Material is requested by Company; and

(f) Licensee will use Commercially Reasonable Efforts to assist Company entering into an agreement with any of Licensee's existing suppliers or contract manufacturers related to the Licensed Product.

8.3.3 In addition to the remedies specified in Sections 8.3.1 and 8.3.2, if this Agreement is terminated for breach, the non-breaching Party may also pursue any available remedy at law or in equity.

ARTICLE 9.
CONFIDENTIALITY

9.1 **Confidentiality.** Each Party shall, and shall cause its Affiliates to, keep confidential any oral or written, tangible or intangible, proprietary or confidential information **("Information")** of the other Party or its Affiliates furnished to it by the other Party, its Affiliates or their directors, officers, employees, representatives or agents, or obtained by it in connection with performance under

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

this Agreement. The term "Information" shall be deemed to include those portions of any notes, analyses, compilations, studies, interpretations, memoranda or other documents (regardless of the form thereof) prepared by the receiving Party or its Affiliates or its or their directors, officers, employees, representatives or agents which contain, reflect or are based upon, in whole or in part, any Information of the disclosing Party or its Affiliates. In addition, such Party and its Affiliates shall not use such Information except in connection with the performance of the obligations of such Party or such Affiliate contemplated hereby or the exercise of any rights hereunder or as expressly provided for herein. Neither Party or its Affiliates will disclose the Information of the other Party or its Affiliates to its Affiliates or its or their directors, officers, employees, representatives or agents unless such Person has a reasonable need to know such Information in connection with the performance of the obligations of such Party or such Affiliates contemplated hereby, the exercise of any rights hereunder or as expressly provided for herein. Neither Party or its Affiliates shall release or disclose such Information to any other Person, except those among its auditors, attorneys, financial advisors, bankers and consultants having a need to know such Information in connection with the transactions or the performance of the obligations of such Party or such Affiliate contemplated hereby, the exercise of any rights hereunder, as required to comply with applicable Law or reporting requirements, or as expressly provided for herein, or to actual or potential acquirers, collaborators, licensees, sub-licensees investment bankers, investors or lenders. Each Person receiving any such Information shall be subject to customary confidentiality obligations prior to such Person's receipt of such Information and such Party shall be primarily liable and responsible for any breach of this Section 9.1 as if such Person was a party hereto. In addition, each Party and its Affiliates are permitted to disclose such Information to the extent such disclosure is to a Governmental Authority as reasonably necessary in filing or prosecuting Patent, copyright and trademark applications, prosecuting or defending litigation related to this Agreement, complying with applicable governmental regulations with respect to performance under this Agreement or otherwise required by applicable Law. If a Party or any of its Affiliates (the "**Compelled Party**") is requested to disclose any Information by any governmental or regulatory authority (including stock exchange rules, GAAP or IFRS), the Compelled Party will promptly notify the other Party (the "**Affected Party**"), to permit it to seek a protective order or take other action that the Affected Party in its discretion deems appropriate, and the Compelled Party will cooperate in any such efforts to obtain a protective order or other reasonable assurance that confidential treatment will be accorded such Information. If, in the absence of a protective order, the Compelled Party is compelled as a matter of Law to disclose any such Information in any proceeding or pursuant to legal process (as advised by its outside legal counsel), the Compelled Party may disclose to the Person compelling disclosure only the part of such Information as is required by Law to be disclosed (in which case, prior to such disclosure, the Compelled Party will advise and consult with the Affected Party and its counsel as to such disclosure and the nature and wording of such disclosure) and the

Compelled Party will use its reasonable best efforts to obtain confidential treatment therefor. The confidentiality obligations contained in this Section 9.1 do not apply to Information that can be shown by such Party to have been (i) previously known by the Party or its Affiliates to which it was furnished prior to the date hereof (and not under a confidentiality obligation), (ii) generally available to the public through no fault or breach of such Party or its Affiliates, (iii) later lawfully acquired from other sources (not under a confidentiality obligation) by the Party or its Affiliates to which it was furnished or (iv) independently developed by a Party or its Affiliates or its or their directors, officers, employees, representatives or agents without the use or reference to any Information of the other Party, or its Affiliates. Following a termination of this Agreement, such confidentiality obligations and use restrictions shall be maintained, subject to the exceptions set forth above, and all Information of the other Party and its Affiliates (including all copies thereof) shall be returned (or, at the other Party's instructions, destroyed, with certification of the same) to the Party that the other Party and its Affiliates shall be permitted to retain such Information (i) to the extent necessary for purposes of performing any continuing obligations or exercising any ongoing rights hereunder and, in any event, one copy of such Information retained by the other Party's legal department for its records (provided that for so long as such Information is so retained, such Information shall be subject to the confidentiality obligations and restrictions on use as set forth herein), and (ii) any computer records or files containing such Information that have been created solely by such Party's or its Affiliates' automatic archiving and back-up procedures, to the extent created and retained in a manner consistent with such Party's standard archiving and back-up procedures, but not for any other use or purposes. Without limiting the generality of the foregoing, to the extent that a Party provides to Licensee any Information owned by any Third Party, Licensee will handle such Information in accordance with the terms and conditions of this Article 9 or the terms and conditions required by the Third Party, whichever is more stringent.

9.2 **Duration of Confidentiality.** The provisions of Section 9.1 shall continue to apply with respect to each Party and its Affiliates until the date which is seven (7) years following the termination of this Agreement.

9.3 **Press Releases and Other Public Disclosures.** Neither Party shall issue any press release or otherwise make any public statement with respect to this Agreement without the prior written consent of the other Party, except in case of public announcements required under the rules of any stock exchange on which the equity interests of a Party or its Affiliates (or any successor entity) are listed or any applicable Law or governmental requirement. Notwithstanding anything to the contrary in this Article 9, a Party (or its Affiliates) may disclose this Agreement (and a summary thereof), in securities filings with the U.S. Securities and Exchange Commission or an equivalent foreign agency to the extent required by applicable Law. In such event, the Party seeking such disclosure shall prepare such summary and a proposed redacted version of this Agreement to request confidential treatment for such agreements, and the other Party may promptly

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(and in any event, no less than three (3) Business Days after receipt of such summary and proposed redactions) provide its comments. The Party seeking such disclosure shall reasonably consider any comments thereto provided by the other Party within such three (3) Business Day period. The Parties have agreed to issue a joint press release or separate press releases announcing this Agreement and the transactions contemplated hereby, to be issued by the Parties at a mutually agreed date and time, in the form(s) to be agreed by the Parties in their reasonable discretion. Notwithstanding any provision of this Agreement to the contrary, Information will not include Residual Knowledge. Any use made by the receiving Party of Residual Knowledge is on an "as is, where is" basis, with all faults and all representations and warranties disclaimed and at its sole risk.

9.4 **Publications.** During the Term, each Party (as the "**Requesting Party**") will submit to the other Party (as the "**Reviewing Party**") for review and approval any proposed academic, scientific and medical publication or public presentation related to any Licensed Product or any activities conducted under this Agreement, in each case, to the extent it includes Information of the other Party. In each such instance, such review and approval will be conducted for the purposes of preserving the value of the Reviewing Party's technology, the rights granted under this Agreement and determining whether any portion of the proposed publication or presentation containing the Reviewing Party's Information should be modified or deleted. Written copies of such proposed publication or presentation required to be submitted hereunder will be submitted to the Reviewing Party no later than 15 Business Days before submission for publication or presentation (or five Business Days in advance in the case of an abstract). The Reviewing Party will provide its comments with respect to such publications and presentations within 10 Business Days of its receipt of such written copy (or five Business Days in the case of an abstract). The review period may be extended for an additional 30 days if the Reviewing Party reasonably requests such extension including for the preparation and filing of patent applications. Notwithstanding anything to the contrary, the Reviewing Party may require, in its reasonable discretion, that the Requesting Party redact the Reviewing Party's Information from any such proposed publication or presentation. The Parties will each comply with standard academic practice regarding authorship of scientific publications and recognition of contribution of other parties in any publication. Notwithstanding the foregoing, a Licensee's obligation to submit any publication to the Company for review and approval under this Section 9.4 will not apply to any publication made by a Licensee with respect to Licensed Products that does not contain Information or disclose any non-public information of the Company; provided, that where reasonably possible, Licensee will provide Company with an advance copy of such publication if such publication is reasonably likely to have a material adverse effect on the value of Company's technology. For clarity, neither Party is obligated hereunder to submit proposed publications to the other Party for all proposed publications relating to work conducted outside of the scope of this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 10.
DISPUTE RESOLUTION

10.1 **Referral to Heads of Businesses.** Unless otherwise specified in this Agreement, the Parties hereby agree that to the extent reasonably practicable and would not materially prejudice a Party, controversies or claims arising out of or relating to this Agreement or the interpretation, performance, breach, termination or validity thereof shall first be referred to the [ ] of Licensee and General Manager of Company for resolution. If these individuals are unable to agree upon a resolution within thirty (30) days after referral of the matter to them (a **"Resolution Period"**), then either Party may pursue any available remedy hereunder, at law or in equity.

10.2 **Attorneys' Fees.** If any action at law or in equity (including, arbitration) is necessary to enforce or interpret the terms of this Agreement, including claims for fraud and/or fraudulent inducement, the prevailing Party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other relief to which such Party may be entitled.

10.3 **Jurisdiction.** Each Party to this Agreement, by its execution hereof, unless otherwise prohibited by applicable Law (a) hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of New York in the Borough of Manhattan and to the United States District Court for the Southern District of New York for the purpose of any enforcement of any arbitral award determined under Section 10.3 or for any dispute not subject to Section 10.3, (b) hereby waives and agrees not to assert, by way of motion, as a defense or otherwise, in any such action, any claim that it is not subject personally to the jurisdiction of the above-named courts, that any such action brought in one of the above-named courts should be dismissed on grounds of forum non conveniens, should be transferred or removed to any court other than one of the above-named courts, or should be stayed by reason of the pendency of some other proceeding in any court other than one of the above-named courts, or that this Agreement or the subject matter hereof may not be enforced in or by such court and (c) to the extent that an action can be commenced in a court and not an arbitration, agrees not to commence any such action in any court other than before one of the above-named courts. Notwithstanding the previous sentence, a Party may commence any action in a court other than the above-named courts for the purpose of enforcing an order or judgment issued by one of the above-named courts.

10.4 **Venue.** Neither Party will assert that venue should properly lie in any other location within the selected jurisdiction.

10.5 **Specific Performance.** Each of the Parties acknowledges and agrees that the other Party would be damaged irreparably in the event any of the provisions of this Agreement are not performed in accordance with their specific terms or otherwise are breached or violated. Accordingly, each of the Parties agrees that, without posting a bond or other undertaking, the other Party may seek (and obtain) an injunction or injunctions to prevent breaches or violations of the provisions of this Agreement and to enforce specifically this Agreement and the terms and provisions hereof in any Action instituted in any court specified herein. An Action for specific performance as provided herein shall not

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

preclude a Party from pursuing any other remedy to which such Party may be entitled, at law or in equity, in accordance with the terms of this Agreement. Each Party further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate provided, however, each Party also agrees that any Party can assert any other defense it may have other than the defense of adequate remedy at law.

10.6 **Governing Law.** This Agreement, and all claims arising under or in connection therewith, will be governed by and interpreted in accordance with the substantive laws of The State of New York.

ARTICLE 11. NOTICES

11.1 **Form of Valid Notice.**

11.1.1 All notices or other communications provided for in this Agreement or that may otherwise be required must be in writing, clearly legible and shall be sent:

(i) by an internationally recognized courier service with acknowledgment of receipt, properly addressed, and postage pre-paid;

(ii) by e-mail; or

(iii) by personal delivery.

11.1.2 Any notice sent by one of the means described in Section 11.1.1 will be deemed received:

(i) if sent by an internationally recognized courier service, three (3) Business Days after deposit with such courier service,

(ii) if sent by e-mail, when there is effective acknowledgment of receipt, or

(iii) if delivered personally, when delivered.

11.2 **Persons and Addresses.** Except as may otherwise be provided, all notices or other communications provided for in this Agreement or that a Party may otherwise be required to give to the other Party shall be sent as provided in Section 11.1 to the following persons at the addresses stated herein or at such other address as either Party may specify by notice to the other Party given in accordance with this Article 11:

To Company:
VIVR LLP
c/o Taylor Wessing
5 New Street Square
London EC4A 3TW
Attn: Andrew Davis

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

With a copy to: Taylor Wessing
5 New Street Square
London EC4A 3TW
Attention: Andrew Davis

To Licensee:

With a copy to:

ARTICLE 12.
ASSIGNMENT

12.1 **Assignment.** Neither this Agreement nor any interest hereunder will be assignable by either Party without the prior written consent of the other Party, except as follows: (a) Licensee, may, subject to the terms of this Agreement, assign its rights and obligations under this Agreement by way of sale of itself or the sale of the portion of such Party's business to which this Agreement relates, through merger, sale of assets or sale of stock or ownership interest; provided that such sale is not primarily for the benefit of its creditors; and (b) either Party may assign its rights and obligations under this Agreement to any of its Affiliates; provided that such Party will remain liable for all of its rights and obligations under this Agreement. An assigning Party will promptly notify the other Party of any assignment or transfer under the provisions of this Section 12.1. This Agreement will be binding upon the successors and permitted assigns of the Parties and the name of a Party appearing herein will be deemed to include the names of such Party's successors and permitted assigns to the extent necessary to carry out the intent of this Agreement. Any assignment not in accordance with this Section 12.1 will be void.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 13.
MISCELLANEOUS

13.1 **Miscellaneous**.

13.1.1 No amendment, modification or addition to any provision of this Agreement shall be valid unless the same shall be in writing and approved by the signature of each Party.

13.1.2 The terms and conditions of this Agreement shall be interpreted according to the common sense meaning intended by the Parties and in accordance with the principles of good faith and fair dealing.

13.1.3 The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Agreement. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise.

13.1.4 Every day commences at 12:00 a.m. and ends at 11:59 p.m. (midnight) New York time. Any reference in this Agreement to a number of days “in” which an action or notice is to be taken or given, shall be interpreted in such way that the term commences the day after the date taken as reference and that the action or notice shall be validly taken or given at the last day. Any reference in this Agreement to a “day” or a number of “days” without explicit qualification of “business” shall be interpreted as a reference to a calendar day or number of calendar days. If any action or notice is to be taken or given on or by a particular calendar day, and such calendar day is not a Business Day, then such action or notice shall be deferred until, or may be taken or given on, the next Business Day.

13.1.5 In the event either Party becomes a debtor under Title 11 of the U.S. Code, this Agreement shall be deemed to be, for purposes of Section 365(n) of Title 11, a license to “Intellectual Property” as defined therein and the other Party and its Affiliates, and each of their successors and assigns as licensees shall have the rights and elections as specified in Section 365(n) of Title 11 of the U.S. Code. Without limiting the foregoing, upon termination of this Agreement by a trustee or executor of either Party which has rejected this Agreement pursuant to any non-contractual rights afforded to it by applicable bankruptcy law and/or a U.S. or foreign bankruptcy court or other tribunal of competent jurisdiction, all rights and licenses herein granted to the other Party

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

shall nonetheless continue in full force and effect in accordance with the terms of this Agreement. The debtor Party shall take such actions to provide similar protections for the non-debtor Party pursuant to similar laws in other jurisdictions.

13.1.6 This Agreement shall constitute the entire agreement and understanding between the Parties and shall supersede and nullify any and all previous agreements, negotiations, commitments, undertakings and declarations heretofore made between the Parties in respect of the subject matter of this Agreement unless expressly provided for herein or in any schedule attached hereto and any other agreement entered in connection herewith.

13.1.7 Words importing gender include all genders.

13.1.8 The division of this Agreement into articles, sections and clauses, the inclusion of a table of contents and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement.

13.1.9 Each provision contained in this Agreement is distinct and severable. A declaration of invalidity, illegality or unenforceability of any provision or a part thereof by an arbitrator, a court or a tribunal of competent jurisdiction shall not affect the validity or enforceability of any other provision of this Agreement. To the extent permitted by law, if any provision of this Agreement, or the application thereof to any Person or any circumstance, is invalid or unenforceable, (i) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (ii) the remainder of this Agreement and the application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application thereof, in any other jurisdiction.

13.1.10 Any mistaken reference to Articles, clauses, Sections, Schedules or paragraphs of this Agreement shall be amended according to common sense and good faith rules. When a reference is made in this Agreement to an Article, clause, Section, Schedule or paragraph, such reference will be to an Article, clause, Section, Schedule or paragraph unless otherwise indicated.

13.1.11 No waiver by any Party of any default, misrepresentation or breach of warranty or covenant hereunder, whether intentional or not, shall be deemed to extend to any prior or subsequent default, misrepresentation or breach of warranty or covenant hereunder or affect in any way any

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

rights arising by virtue of any prior or subsequent such occurrence. No single or partial exercise of any right, power or privilege shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege unless explicitly provided for in this Agreement.

13.1.12 Subject to the terms of and restrictions in this Agreement, the reference to any Party shall include its successors or permitted transferees that have legally acquired its rights, obligations and/or duties. This Agreement shall be binding upon and inure solely to the benefit of the Parties and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other Person any legal or equitable right, benefit or remedy of any nature whatsoever, unless otherwise specified therein.

13.1.13 EACH OF THE PARTIES HEREBY WAIVES TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY WITH RESPECT TO ANY ACTION OR LIABILITY DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT. EACH OF THE PARTIES HEREBY (A) CERTIFIES THAT NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF ANY SUCH ACTION OR LIABILITY, SEEK TO ENFORCE THE FOREGOING WAIVER; AND (B) ACKNOWLEDGES THAT IT HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, AS APPLICABLE, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 13.1.13.

13.1.14 This Agreement may be executed and delivered (including by means of electronic transmission, such as by electronic mail in ".pdf" form) in two or more counterparts, and by the different Parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement.

13.1.15 Whenever the words "include," "includes" or "including" are used in this Agreement, they will be deemed to be followed by the words "without limitation." The words "hereof," "herein" and "hereunder" and words of similar import when used in this Agreement will refer to this Agreement as a whole and not to any particular provision of this Agreement. All terms used herein with initial capital letters have the meanings ascribed to them herein and all terms defined in this Agreement will have such defined meanings when used in any

certificate or other document made or delivered pursuant hereto unless otherwise defined therein. The definitions contained in this Agreement are applicable to the singular as well as the plural forms of such terms. Any agreement, instrument or statute defined or referred to herein, or in any agreement or instrument that is referred to herein, means such agreement, instrument or statute as from time to time amended, modified or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The use of "or" is not intended to be exclusive unless expressly indicated otherwise. References to sums of money are expressed in lawful currency of the United States (U.S. dollars), unless the Parties otherwise agree in writing to use a different currency.

13.1.16 Both Parties are independent contractors under this Agreement. Nothing herein contained will be deemed to create an employment, agency, joint venture or partnership relationship between the Parties hereto or any of their agents or employees, or any other legal arrangement that would impose liability upon one Party for the act or failure to act of the other Party, except to the extent specifically agreed to in a written agreement signed by the Parties. Neither Party will have any express or implied power to enter into any contracts or commitments or to incur any liabilities in the name of, or on behalf of, the other Party, or to bind the other Party in any respect whatsoever.

[SIGNATURE PAGE FOLLOWS]

* - * - * - *

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their representatives thereunto duly authorized as of the Effective Date.

VIVR LLP	**[LICENSEE]**
By: _____	By: _____
Name:	Name:
Title:	Title:

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit B

Baseball Arbitration Procedures

Notice. A Party shall initiate the final, binding, non-appealable "baseball type arbitration" by sending written notice to the other Party.

Selection of Baseball Expert and Submission of Positions. The Parties will select and agree upon a mutually acceptable independent Third Party expert who is neutral, disinterested and impartial, and has the experience reasonably required for the applicable dispute (the "Baseball Expert"), which the parties agree shall include the Relevant Experience to the extent reasonably practicable. If the Parties are unable to mutually agree upon a Baseball Expert within […***…] following the delivery of the request for Baseball Arbitration, then upon request by either Party, the Baseball Expert will be an arbitrator appointed by Judicial and Mediation Services ("JAMS"), which arbitrator shall, to the extent available in the jurisdiction and on the timetable provided for herein, have the above-described experience and be neutral, disinterested and impartial. If an arbitrator having the above-described experience is not available in the jurisdiction and/or on the timetable provided for herein, the appointed arbitrator need not have the above-described experience. "Relevant Experience" means experience with valuing pharmaceutical products and licensing transactions involving pharmaceutical products, which may include experience relevant to the determination of risks and costs associated with the development and commercialization of pharmaceutical products.

Submission. Once the Baseball Expert has been selected, each Party will within […***…] following selection of the Baseball Expert provide the Baseball Expert and the other Party with a written report setting forth its position with respect to the substance of the dispute including, (i) (x) if the dispute regards which Qualifying Offer provides the highest value to the Company, such Party's Qualifying Offer (if such Party made a Qualifying Offer that it is arguing provides the highest value to the Company) or any Third Party's Qualifying Offer (if such Party is arguing that such Qualifying Offer provides the highest value to the Company), including the complete agreement with its licensing terms and any related documents (the "Proposal"), or (y) if the dispute regards the compensation payable for a Cross-Field Expansion, such Party's proposal regarding the compensation payable for such Cross-Field Expansion, and (ii) any supporting documents and arguments. Such supporting documents and arguments shall not exceed 25 pages. Within […***…] of each Party receiving the other Party's submissions, each Party shall submit rebuttal documents, if any. Such rebuttal documents shall not exceed 10 pages. If so requested by the Baseball Expert, each Party will make oral submissions to the Baseball Expert based on such Party's written report, and each Party will have the right to be present during any such oral submissions.

JAMS Supervision. In the event the Baseball Expert is a JAMS arbitrator selected by JAMS that does not have the above-described experience, the Baseball Expert may retain a Third Party expert who is neutral, disinterested and impartial, with the necessary experience to assist in rendering such decision, and the expenses of any such expert will be shared by the Parties as costs of the arbitration as provided in this Exhibit B. The Third Party expert shall be subject to the approval of the Parties, which shall not be unreasonably withheld, conditioned or delayed.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Determination by the Baseball Expert. The matter will be conducted as a binding arbitration in accordance with JAMS procedures, as modified by this Exhibit B (including that the arbitrator will adopt as his or her decision the position of one Party or the other, as described below). The Baseball Expert will, no later than […***…] after the last submission of the written reports and, if any, oral submissions, select one of the Party's positions (which will be a proposal in the case of a highest value dispute) as his or her final decision, and will not have the authority to modify either Party's positions (which will be a proposal in the case of a highest value dispute) or render any substantive decision other than to so select the positions (which will be a proposal in the case of a highest value dispute) of one of the Parties as set forth in their respective written report (as initially submitted in accordance with this Exhibit B). The decision of the Baseball Expert will be the sole, exclusive, binding and non-appealable remedy between them regarding the dispute submitted to such Baseball Expert.

Confidentiality. The Parties hereto will maintain the substance of any proceedings hereunder in confidence as Information (as defined in the JV Agreement) as required by Article 17 of the JV Agreement and the Baseball Expert, prior to any proceedings hereunder, will sign an agreement whereby the Baseball Expert agrees to keep the substance of any proceedings hereunder in confidence. This shall apply *mutatis mutandis* to any Third Party expert retained by the Baseball Expert.

Location; Costs. Unless otherwise mutually agreed upon by the Parties, the in-person portion (if any) of such proceedings will be conducted in New York, New York. […***…]

Timetable for Completion in […***…]**.** The Parties will use, and will direct the Baseball Expert to use, commercially reasonable efforts to resolve a dispute within […***…] after the selection of the Baseball Expert, or if resolution within […***…] is not reasonably achievable, as determined by the Baseball Expert, then as soon thereafter as is reasonably practicable.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit C

Antitrust Covenants

1. HSR Compliance. If either the Company or a party to the Opt-In Transaction (the "Opt-In Counterparty," which term shall include a Third Party, if applicable) determines that an Antitrust Filing is required for the Opt-In Counterparty to receive the licenses granted pursuant thereto with respect to the applicable Licensed Product, each of the Company and Opt-In Counterparty (and, if required by applicable Antitrust Laws, either or both Parties) (each a "Filing Party" and together, the "Filing Parties") will, within […***…] after the Winning Offer is determined (or such later time as may be agreed to in writing by the Company and the Opt-In Counterparty), make any Antitrust Filings required with respect to such Opt-In Transaction. The Filing Parties will cooperate with one another to the extent necessary in the preparation of any such Antitrust Filing, including filing for early termination of the applicable waiting period if applicable and reasonably practicable to do so. Each Filing Party will be responsible for its own costs and expenses (other than filing fees, which the Opt-In Counterparty will pay) associated with any Antitrust Filing.

2. Antitrust Clearance. In furtherance of obtaining clearance for any Antitrust Filing filed pursuant to Section 1 above, the Filing Parties will use their respective Commercially Reasonable Efforts to resolve as promptly as practicable any objections that may be asserted with respect to the applicable Opt-In Transaction under any Antitrust Law, and keep each other and the other parties hereto reasonably informed of any communications received from or with any Antitrust Authorities. In connection with obtaining any such Antitrust Approval from the applicable Antitrust Authorities, no Filing Party, including any of its respective Affiliates, will be required to: […***…].

3. "Definitions"

"Antitrust Approval" means any consent, approval or other authorization required under the applicable Antitrust Laws from the applicable Antitrust Authorities,

"Antitrust Authority" means any applicable Governmental Authority with respect to such Antitrust Laws.

"Antitrust Condition" means that the waiting period (and any extension thereof) applicable to the consummation of the applicable Opt-In Transaction under any and all applicable Antitrust Laws shall have expired or been terminated, and, if applicable, the Company's receipt of any applicable Antitrust Approvals for the consummation of such Opt-In Transaction under such Antitrust Laws.

"Antitrust Filing" means a filing or filings by the Filing Parties with the applicable Antitrust Authorities as required by the applicable Antitrust Laws with respect to the applicable Opt-In Transaction, together with all required documentary attachments thereto.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

"Antitrust Law" means any Law governing competition, monopolies or restrictive trade practices, including the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules and regulations promulgated thereunder.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SPECIFIC TERMS IN THIS EXHIBIT HAVE BEEN REDACTED BECAUSE CONFIDENTIAL TREATMENT FOR THOSE TERMS HAS BEEN REQUESTED. THESE REDACTED TERMS HAVE BEEN MARKED IN THIS EXHIBIT WITH THREE ASTERISKS [***]. AN UNREDACTED VERSION OF THIS EXHIBIT HAS BEEN SEPARATELY FILED WITH THE SECURITIES AND EXCHANGE COMMISSION.

Exhibit 10.4

STRATEGIC COLLABORATION, OPTION AND LICENSE AGREEMENT

BETWEEN

VERTEX PHARMACEUTICALS INCORPORATED

VERTEX PHARMACEUTICALS (EUROPE) LIMITED

AND

CRISPR THERAPEUTICS AG

CRISPR THERAPEUTICS LIMITED

CRISPR THERAPEUTICS, INC.

TRACR HEMATOLOGY LTD.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

STRATEGIC COLLABORATION, OPTION AND LICENSE AGREEMENT

This **STRATEGIC COLLABORATION, OPTION AND LICENSE AGREEMENT** (this "**Agreement**") is entered into as of October 26, 2015 (the "**Effective Date**") by and between, on the one hand, VERTEX PHARMACEUTICALS INCORPORATED, a corporation organized and existing under the laws of The Commonwealth of Massachusetts ("**Vertex Parent**"), and VERTEX PHARMACEUTICALS (EUROPE) LIMITED, a private limited liability company organized under the laws of England and Wales ("**Vertex UK**" and, together with Vertex Parent, "**Vertex**") and, on the other hand, CRISPR THERAPEUTICS AG, a corporation organized under the laws of Switzerland ("**CRISPR AG**"), CRISPR THERAPEUTICS, INC., a corporation organized under the laws of the state of Delaware ("**CRISPR Inc.**"), CRISPR THERAPEUTICS LIMITED, a corporation organized under the laws of England and Wales ("**CRISPR UK**") and TRACR HEMATOLOGY LTD, a UK limited company ("**Tracr**" and together with CRISPR AG, CRISPR Inc. and CRISPR UK "**CRISPR**"). Vertex and CRISPR each may be referred to herein individually as a "**Party**" or collectively as the "**Parties.**"

RECITALS

WHEREAS, CRISPR possesses certain Patents, Know-How, technology and expertise with respect to the CRISPR/Cas System (as defined below);

WHEREAS, Vertex possesses expertise in developing and commercializing human therapeutics;

WHEREAS, Vertex and CRISPR desire to enter into a strategic collaboration focused on exploring potential targets related to certain diseases and creating therapeutics using gene editing [***], including the CRISPR/Cas System, to treat such diseases; and

WHEREAS, simultaneously with the execution of this Agreement, the Parties are entering into a convertible debt instrument, pursuant to which Vertex will provide CRISPR AG with a total of $30,000,000 in funding, which funding will be converted into shares of CRISPR AG's preferred stock in accordance with the terms thereof;

NOW, THEREFORE, in consideration of the respective covenants, representations, warranties and agreements set forth herein, the Parties hereto agree as follows:

ARTICLE 1
DEFINITIONS

For purposes of this Agreement, the following capitalized terms will have the following meanings:

1.1 "**Acceptance**" means, with respect to an Approval Application filed for a Product, (a) in the United States, the receipt of written notice from the FDA that such Approval Application is officially "*filed*" or (b) in the European Union, the receipt of written notice of acceptance by the EMA of such Approval Application for filing under the centralized European

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

procedure in accordance with any feedback received from EU Regulatory Authorities; *provided* that if the centralized filing procedure is not used, then Acceptance will be determined upon the acceptance of such Approval Application by the applicable Regulatory Authority in a Major Market Country in the EU.

1.2 "**Additional Research**" has the meaning set forth in Section 2.12.

1.3 "**Additional Research Budget**" has the meaning set forth in Section 2.12.

1.4 "**Additional Research Plan**" has the meaning set forth in Section 2.12.

1.5 "**Adverse Event**" has the meaning set forth in the Applicable Law for such term (or comparable term), and will generally mean any untoward medical occurrence in a subject in any Clinical Trial who has received a Licensed Agent or Product, medical device or placebo, and which does not necessarily have a causal relationship with such Licensed Agent, Product, medical device or placebo, including any unfavorable and unintended sign (including an abnormal laboratory finding), symptom or disease temporally associated with the use of the applicable Licensed Agent or Product, whether or not related to such Licensed Agent or Product.

1.6 "**Affiliate**" means, as of any point in time and for so long as such relationship continues to exist with respect to any Person, any other Person that controls, is controlled by or is under common control with such Person. A Person will be regarded as in control of another Person if it (a) owns or controls more than 50% of the equity securities of the subject Person entitled to vote in the election of directors (or, in the case of a Person that is not a corporation, for the election of the corresponding managing authority); *provided*, *however*, that the term "Affiliate" will not include subsidiaries or other entities in which a Person owns a majority of the ordinary voting power necessary to elect a majority of the board of directors or other governing board, but is restricted from electing such majority by contract or otherwise, until such time as such restrictions are no longer in effect, or (b) possesses, directly or indirectly, the power to direct or cause the direction of the management or policies of an such Person (whether through ownership of securities or other ownership interests, by contract or otherwise).

1.7 "**Agreement**" has the meaning set forth in the Preamble.

1.8 "**Agreement Term**" means the period commencing on the Effective Date and ending on the expiration of this Agreement pursuant to Section 11.1, unless terminated earlier as provided herein.

1.9 "**Alliance Manager**" has the meaning set forth in Section 3.4.1.

1.10 "**Applicable Law**" means all applicable laws, statutes, rules, regulations and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, agency or other body, domestic or foreign, including any applicable rules, regulations, guidelines, or other requirements of the Regulatory Authorities that may be in effect from time to time.

1.11 "**Approval Application**" means a BLA, NDA or similar application or submission for a Product filed with a Regulatory Authority in a country or group of countries to obtain marketing approval for a biological or pharmaceutical product in that country or group of countries.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.12 "**Audited Party**" has the meaning set forth in Section 7.9.

1.13 "**Auditing Party**" has the meaning set forth in Section 7.9.

1.14 "**Available**" has the meaning set forth in Section 1.34.

1.15 "**BLA**" means a Biological License Application that is submitted to the FDA for marketing approval for a Licensed Agent or Product pursuant to 21 C.F.R. § 601.2.

1.16 [***].

1.17 [***].

1.18 "**Breaching Party**" means the Party that is believed by the other Party to be in material breach of this Agreement.

1.19 "**Business Day**" means a Monday, Tuesday, Wednesday, Thursday or Friday that is not a day on which banking institutions in Boston, Massachusetts are authorized or obligated to close.

1.20 "**Calendar Quarter**" means the respective periods of three consecutive calendar months ending on March 31, June 30, September 30 or December 31, during the Agreement Term, or the applicable part thereof during the first or last calendar quarter of the Agreement Term.

1.21 "**Calendar Year**" means any calendar year ending on December 31, or the applicable part thereof during the first or last year of the Agreement Term.

1.22 "**cGMP**" means current Good Manufacturing Practices as specified in the United States Code of Federal Regulations, ICH Guideline Q7A, or equivalent laws, rules, or regulations of an applicable Regulatory Authority at the time of manufacture.

1.23 "**Change of Control**" means, with respect to a Party, (a) a merger or consolidation of such Party with a Third Party that results in the voting securities of such Party outstanding immediately prior thereto, or any securities into which such voting securities have been converted or exchanged, ceasing to represent more than 50% of the combined voting power of the surviving entity or the parent of the surviving entity immediately after such merger or consolidation, or (b) a transaction or series of related transactions in which a Third Party, together with its Affiliates, becomes the beneficial owner of more than 50% of the combined voting power of the outstanding securities of such Party, or (c) the sale or other transfer to a Third Party of all or substantially all of such Party's business to which the subject matter of this Agreement relates. Notwithstanding the foregoing, with respect to CRISPR, the term "Change of Control" will not include any sale of shares of capital stock of CRISPR, in a single transaction or series of related transactions in which CRISPR issues new securities solely to institutional investors for cash or the cancellation or conversion of indebtedness or a combination thereof where such transaction(s) are conducted primarily for bona fide equity financing purposes.

1.24 "**Clinical Trial**" means a study in humans that is conducted in accordance with GCP and is designed to generate data in support of an Approval Application.

1.25 "**Collaboration Program**" means, on a Collaboration Target-by-Collaboration Target basis, a Research program dedicated to the design, optimization and Research of Licensed Agents and Products directed to such Collaboration Target pursuant to a Research Plan and, upon Vertex's exercise of the Option for a Collaboration Target, Vertex's (or with respect to any Hemoglobinopathy Target [***], the Parties') Research, Development, Manufacture and Commercialization of such Licensed Agents and Products.

1.26 "**Collaboration Program Working Group**" has the meaning set forth in Section 3.2.

1.27 "**Collaboration Target**" means a Vertex Target that Vertex has selected as the subject of a Research Plan in accordance with Section 2.3.3.

1.28 "**Combination Product**" has the meaning set forth in Section 1.117.

1.29 "**Commercialize**" or "**Commercializing**" means to market, promote, distribute, offer for sale, sell, have sold, import, export or otherwise commercialize a product, to conduct activities, other than Research, Development and Manufacturing, in preparation for the foregoing activities, including obtaining Price Approval, and to conduct post-Marketing Approval studies (including Clinical Trials). When used as a noun, "**Commercialization**" means any and all activities involved in Commercializing.

1.30 "**Commercially Reasonable Efforts**" means with respect to the efforts to be expended by any Person, with respect to any objective, reasonable, diligent and good faith efforts to accomplish such objective. With respect to any objective relating to the Research, Development or Commercialization of a Licensed Agent or Product, "Commercially Reasonable Efforts" means [***], taking into account, without limitation, with respect to each Licensed Agent or Product, (a) [***], (b) [***], (c) [***], (d) [***], (e) [***], (f) [***], (g) [***], (h) [***], (i) [***] and (j) [***]. "Commercially Reasonable Efforts" shall be [***].

1.31 "**Competitive Infringement**" has the meaning set forth in Section 8.6.1.

1.32 "**Competitive Program**" has the meaning set forth in Section 1.33.

1.33 "**Competitor**" means any pharmaceutical company that is conducting a research, development or commercial program for a product that is intended to (a) [***], (b) [***] or (c) [***] (each of (a) - (c), a "**Competitive Program**").

1.34 "**Confidential Information**" means, with respect to each Party, all Know-How or other information, including proprietary information (whether or not patentable) regarding or embodying such Party's technology, products, business information or objectives, that is communicated in any way or form by or on behalf of the Disclosing Party to the Receiving Party

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

or its permitted recipients, prior to, on or after the Effective Date, whether or not such Know-How or other information is identified as confidential at the time of disclosure. The terms and conditions of this Agreement will be considered Confidential Information of both Parties, with both Parties deemed to be the Receiving Party of such Confidential Information. The Vertex Target List and the identity of the Collaboration Targets hereunder will be the Confidential Information of both Parties; provided, that if Vertex exercises the Option for a Collaboration Target, the identity of such Collaboration Target will be Vertex's Confidential Information and will no longer be CRISPR's Confidential Information; and provided, further, [***] Notwithstanding any provision of this Section 1.34 to the contrary, Confidential Information does not include any Know-How or information that: (a) was already known by the Receiving Party (other than under an obligation of confidentiality to the Disclosing Party) at the time of disclosure by or on behalf of the Disclosing Party; (b) was generally available to the public or otherwise part of the public domain at the time of its disclosure to the Receiving Party; (c) became generally available to the public or otherwise part of the public domain after its disclosure to the Receiving Party, other than through any act or omission of the Receiving Party in breach of its obligations under this Agreement; (d) was disclosed to the Receiving Party, other than under an obligation of confidentiality, by a Third Party who had no obligation to the Disclosing Party not to disclose such information to the Receiving Party; or (e) was independently discovered or developed by or on behalf of the Receiving Party without the use of any Confidential Information belonging to the Disclosing Party; *provided*, in connection with the foregoing exclusions from protection, that specific Confidential Information shall not be deemed to be known, generally available, in the public domain, disclosed, independently discovered or developed (individually and collectively "**Available**"), merely because broader or related information is Available, nor shall combinations of elements or principles be considered to be Available merely because individual elements thereof are Available.

1.35 "**Continuation Notice**" has the meaning set forth in Section 2.6.

1.36 "**Continuation Research**" has the meaning set forth in Section 2.6.

1.37 "**Control**" or "**Controlled**" means with respect to any Know-How or Patent or other data, information or Materials, possession of the ability by a Party or its Affiliate(s) (whether by sole or joint ownership, license or otherwise, other than pursuant to this Agreement) to grant, without violating the terms of any agreement with a Third Party, a license, access or other right in, to or under such Know-How or Patent or other data, information or Materials. Notwithstanding anything in this Agreement to the contrary, a Party will be deemed to not Control any Patents or Know-How that are owned or controlled by a Third Party described in the definition of "Change of Control," or such Third Party's Affiliates (other than an Affiliate of such Party prior to the Change of Control), (a) prior to the closing of such Change of Control, except to the extent that any such Patents or Know-How were developed prior to such Change of Control through the use of such Party's technology, or (b) after such Change of Control to the extent that such Patents or Know-How are developed or conceived by such Third Party or its Affiliates (other than such Party) after such Change of Control without using or incorporating such Party's technology.

1.38 "**Cost Report**" has the meaning set forth in Section 7.4.2.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.39 "**Cover**," "**Covering**" or "**Covers**" means, as to a product and Patent, that, in the absence of a license granted under, or ownership of, such Patent, the making, using, keeping, selling, offering for sale or importation of such product would infringe such Patent or, as to a pending claim included in such Patent, the making, using, selling, offering for sale or importation of such product would infringe such Patent if such pending claim were to issue in an issued patent without modification.

1.40 "**CREATE Act**" means the Cooperative Research and Technology Enhancement Act of 2004, 35 U.S.C. § 103(c)(2)-(c)(3).

1.41 "**CRISPR**" has the meaning set forth in the Preamble.

1.42 "**CRISPR Activities**" means any and all Research activities other than Vertex Activities under any Research Plan.

1.43 "**CRISPR Agreement Breach**" has the meaning set forth in Section 11.2.3(a).

1.44 "**CRISPR Background Know-How**" means any Know-How, other than Joint Program Know-How and CRISPR Program Know-How, that (a) [***] and (b) [***]. On a Collaboration Target-by-Collaboration Target basis, CRISPR Background Know-How will exclude [***]. For the avoidance of doubt, the CRISPR Background Know-How includes the Know-How claimed or disclosed in the CRISPR Platform Technology Patents.

1.45 "**CRISPR Background Patents**" means any Patent, other than a Joint Program Patent, CRISPR Program Patent or CRISPR Platform Technology Patent that (a) [***] and (b) [***]. On a Collaboration Target-by-Collaboration Target basis, CRISPR Background Patents will exclude [***].

1.46 "**CRISPR Breach Event**" has the meaning set forth in Section 11.2.3(a).

1.47 "**CRISPR Entity**" means, when used in the singular, any one of CRISPR UK, CRISPR AG, CRISPR Inc. or Tracr. "**CRISPR Entities**" means, when used in the plural, CRISPR UK, CRISPR AG, CRISPR Inc. and Tracr.

1.48 "**CRISPR Indemnified Party**" has the meaning set forth in Section 10.1.

1.49 "**CRISPR In-License Agreements**" has the meaning set forth in Section 7.6.1.

1.50 "**CRISPR Platform Technology Patents**" means all Patents that are owned, used, developed by, or licensed to CRISPR or its Affiliates, in each case to the extent Controlled by CRISPR or its Affiliates on the Effective Date or at any time during the Agreement Term, claiming [***]. For clarity, the CRISPR Platform Technology Patents (i) will not include [***] and (ii) will include all [***].

1.51 "**[***] Patent**" has the meaning set forth in Section 8.1.3(a).

1.52 "**CRISPR Program Breach**" has the meaning set forth in Section 11.2.3(a).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.53 "**CRISPR Program Know-How**" has the meaning set forth in Section 8.1.2(a).

1.54 "**CRISPR Program Patents**" has the meaning set forth in Section 8.1.2(a).

1.55 "**CRISPR Program Technology**" has the meaning set forth in Section 8.1.2(a).

1.56 "**CRISPR Reserved Target**" means all Targets described or identified on Schedule A.

1.57 "**CRISPR/Cas System**" means a clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) protein system that comprises (a) [***] and (b) [***].

1.58 "**Development**" means, with respect to a Licensed Agent, all clinical and non-clinical research and development activities conducted after filing of an IND for such Licensed Agent, including toxicology, pharmacology test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, Clinical Trials (other than post-Marketing Approval Clinical Trials), regulatory affairs, pharmacovigilance, Clinical Trial regulatory activities and obtaining and maintaining Regulatory Approval. When used as a verb, "**Develop**" or "**Developing**" means to engage in Development.

1.59 "**Disclosing Party**" has the meaning set forth in Section 12.1.

1.60 "**Distracting Product**" means a product containing (a) [***] or (b) [***].

1.61 "**Distributor**" means a Third Party to whom Vertex grants a right to sell or distribute a Product, that does not make payments to Vertex that are calculated on the basis of a percentage of, or profit share on, such Third Party's sales of Products.

1.62 "**Divestiture**" means, with respect to a Distracting Product, the sale, exclusive license or other transfer by the applicable Party and its Affiliates of all of their development and commercialization rights with respect to such Distracting Product to a Third Party without the retention or reservation of any development or commercialization obligation, interest or participation rights (other than solely an economic interest or the right to enforce customary terms and conditions contained in the relevant agreements effectuating such transaction). When used as a verb, "**Divest**" means the to engage in a Divestiture.

1.63 "**DOJ**" has the meaning set forth in Section 4.1.2(a).

1.64 "**Effective Date**" has the meaning set forth in the Preamble.

1.65 "**EMA**" means the European Medicines Agency and any successor entity thereto.

1.66 "**Establishment of POC**" with respect to a Product, [***] that [***] (a) [***] and (b) [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.67 "**European Commission**" means the European Commission or any successor entity that is responsible for granting marketing approvals authorizing the sale of pharmaceuticals in the European Union.

1.68 "**European Union**" or "**EU**" means each and every country or territory that is officially part of the European Union.

1.69 "**Exclusive License**" has the meaning set forth in Section 5.3.1.

1.70 "**Executive Officers**" means the Chief Scientific Officer of CRISPR AG, initially Sven Ante (Bill) Lundberg, and the Chief Scientific Officer of Vertex, initially David Altshuler; *provided*, that for purposes of Section 11.3.4(a), "Executive Officers" means the Chief Executive Officer of CRISPR AG, initially Rodger Novak, and the Chief Financial Officer of Vertex, initially Ian Smith.

1.71 "**FDA**" means the United States Food and Drug Administration and any successor entity thereto.

1.72 "**FD&C Act**" means the United States Federal Food, Drug, and Cosmetic Act, as amended, and the rules and regulations promulgated thereunder.

1.73 "**Field**" means the diagnosis, treatment or prevention of disease in humans or animals in [***].

1.74 "**Final Target Selection Period**" means the [***] period following the Initial Target Selection Period.

1.75 "**First Commercial Sale**" means with respect to a Product, the first sale of such Product by Vertex, its Affiliate or its Sublicensee to a Third Party resulting in Net Sales in a particular country after any required Marketing Approval for the Product has been obtained in such country.

1.76 "**Force Majeure**" means a condition, the occurrence and continuation of which is beyond the reasonable control of a Party, including an act of God, voluntary or involuntary compliance with any regulation, law or order of any government, war, civil commotion, labor strike or lock-out, epidemic, flood, failure or default of public utilities or common carriers, destruction of production facilities or materials by fire, earthquake, storm or like catastrophe.

1.77 "**Foundational Intellectual Property Rights**" means all rights, title and interest in [***]; and any worldwide patents and patent applications claiming priority thereto and all inventions covered or claimed by such patent applications (together with all provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing).

1.78 "**FTC**" has the meaning set forth in Section 4.1.2(a).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.79 "**FTE Rate**" means, [***]; *provided* that such rates will increase or decrease on [***] over the twelve month period preceding each such January 1.

1.80 "**GAAP**" means United States generally accepted accounting principles, consistently applied.

1.81 "**GCP**" means good clinical practices, which are the then-current standards for Clinical Trials for pharmaceuticals, as set forth in the FD&C Act or other Applicable Law, and such standards of good clinical practice as are required by the Regulatory Authorities of the European Union and other organizations and governmental authorities in countries for which the applicable Licensed Agent is intended to be Developed, to the extent such standards are not less stringent than United States standards.

1.82 "**[***] Joint Program Know-How**" has the meaning set forth in Section 8.1.2(d).

1.83 "**[***] Joint Program Patents**" has the meaning set forth in Section 8.1.2(d).

1.84 "**[***] Joint Program Technology**" has the meaning set forth in Section 8.1.2(d).

1.85 "**[***]**" means [***], including, but not limited to, [***], and any variation thereof, in each case [***]

1.86 "**Generic Product**" means, with respect to a particular Product in a particular country, a product on the market in such country commercialized by any Third Party that is not a Sublicensee and that did not purchase such product in a chain of distribution that included any of Vertex or its Affiliates or Sublicensees, that (a) is approved by the applicable Regulatory Authority, under any then-existing laws and regulations in the applicable country pertaining to approval of generic or biosimilar biologic products, as a "generic" or "biosimilar" version of such Product, which approval uses such Product as a reference product and relies on or references pivotal safety or efficacy data in the Approval Application for such Product or (b) otherwise meets the criteria for constituting a "biosimilar" or "interchangeable" product pursuant to Section 351(k) of the Public Health Service Act (42 U.S.C. § 262(k)) or EMA Directive 2001/83/EC or any foreign equivalent thereof or successors thereto.

1.87 "**GLP**" means the then-current good laboratory practice standards promulgated or endorsed by the FDA as defined in 21 C.F.R. Part 58 or the successor thereto, or comparable regulatory standards in jurisdictions outside of the United States, to the extent such standards are not less stringent than United States standards.

1.88 "**Governmental Authority**" means any court, agency, department, authority or other instrumentality of any national, state, county, city or other political subdivision.

1.89 "**Hemoglobinopathy Target**" means a Target related to the [***].

1.90 "**HSR Act**" means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules and regulations promulgated thereunder.

1.91 "**HSR Clearance Date**" means the earliest date on which the Parties have actual knowledge that all applicable waiting periods under the HSR Act with respect to the transactions contemplated hereunder have expired or have been terminated.

1.92 "**HSR Filing**" means a filing by Vertex and CRISPR with the FTC and the DOJ of a Notification and Report Form for Certain Mergers and Acquisitions (as that term is defined in the HSR Act) with respect to the matters set forth in this Agreement, together with all required documentary attachments thereto.

1.93 "**IND**" means any Investigational New Drug application, filed with the FDA pursuant to Part 312 of Title 21 of the U.S. Code of Federal Regulations, including any supplements or amendments thereto. References herein to IND will include, to the extent applicable, any comparable filings outside the United States.

1.94 "**Indemnified Party**" has the meaning set forth in Section 10.3.

1.95 "**Indemnifying Party**" has the meaning set forth in Section 10.3.

1.96 "**Initial Collaboration Targets**" means the Targets set forth on Schedule B under the heading "Initial Collaboration Targets."

1.97 "**Initial Target Selection Period**" means the first [***] of the Research Term.

1.98 "**Initiation**" or "**Initiate**" means, with respect to any Clinical Trial, dosing of the first human subject in such Clinical Trial.

1.99 "**Insolvency Event**" has the meaning set forth in Section 11.2.5.

1.100 "**Joint Development & Commercialization Agreement**" has the meaning set forth in Section 6.1.2(c).

1.101 "**Joint Program Know-How**" means [***] Joint Program Know-How, [***] Joint Program Know-How and Other Joint Program Know-How.

1.102 "**Joint Program Patents**" means [***] Joint Program Patents, [***] Joint Program Patents and Other Joint Program Patents.

1.103 "**Joint Program Technology**" means [***] Joint Program Technology, [***] Joint Program Technology and Other Joint Program Technology.

1.104 "**Joint Research Committee**" or "**JRC**" has the meaning set forth in Section 3.1.1.

1.105 "**Know-How**" means intellectual property, data, results, pre-clinical and clinical protocols and data from studies and Clinical Trials, chemical structures, chemical sequences, information, inventions, know-how, formulas, trade secrets, techniques, methods, processes, procedures and developments, whether or not patentable; *provided* that Know-How does not include Patents claiming any of the foregoing.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.106 "**Knowledge**" means [***] of [***] after [***].

1.107 "**Liability**" has the meaning set forth in Section 10.1.

1.108 "**Licensed Agent**" means a product comprising (a) [***], where such [***], or any portion thereof is [***] or (b) [***] by such [***].

1.109 "**Licensed Know-How**" means (a) CRISPR Background Know-How, (b) CRISPR Program Know-How and (c) CRISPR's interest in the Joint Program Know-How.

1.110 "**Licensed Patents**" means (a) CRISPR Background Patents, (b) CRISPR Platform Technology Patents, (c) CRISPR Program Patents, (d) [***] Patents (until [***]) and (e) CRISPR's interest in the Joint Program Patents.

1.111 "**Licensed Technology**" means, subject to Section 5.3.2 and Section 7.6.6, any and all Licensed Patents and Licensed Know-How.

1.112 "**Major Market Country**" means any one of the following countries: [***].

1.113 "**Manufacture**" or "**Manufactured**" or "**Manufacturing**" means activities directed to making, having made, producing, manufacturing, processing, filling, finishing, packaging, labeling, quality control testing and quality assurance release, shipping or storage of a product.

1.114 "**Marketing Approval**" means, with respect to a Product in a particular jurisdiction, all approvals, licenses, registrations or authorizations necessary for the Commercialization of such Product in such jurisdiction, including, with respect to the United States, approval of an Approval Application for such Product by the FDA and with respect to the European Union, approval of an Approval Application for such Product by the European Commission.

1.115 "**Materials**" means all biological materials or chemical compounds arising out of a Party's activities under this Agreement or otherwise provided by a Party for use by the other Party to conduct activities pursuant to this Agreement, including Licensed Agents, Clinical Trial samples, cell lines, assays, viruses and vectors.

1.116 "**NDA**" means a new drug application that is submitted to the FDA for marketing approval for a Licensed Agent or Product, pursuant to 21 C.F.R. § 314.3.

1.117 "**Net Sales**" means the gross invoiced price for Products sold by Vertex, its Affiliates or Sublicensees (the "**Selling Party**") to Third Parties, less the following deductions from such gross amounts:

(a) credits or allowances, if any are actually allowed, on account of price adjustments, recalls, claims, damaged goods, rejections or returns of items previously sold (including product returned in connection with recalls or withdrawals) and amounts written off by reason of uncollectible debt, provided that if the debt is thereafter paid, the corresponding amount shall be added to the Net Sales for the period during which it is paid;

(b) import taxes, export taxes, excise taxes (including annual fees due under Section 9008 of the United States Patient Protection and Affordable Care Act of 2010 (Pub. L. No. 111-48)), sales taxes, value-added taxes, consumption taxes, duties or other taxes levied on, absorbed, determined or imposed with respect to such sales (excluding income or net profit taxes or franchise taxes of any kind), to the extent not reimbursed by a non-related party;

(c) insurance, customs charges, freight, shipping and other transportation costs incurred in shipping product to such non-related parties, to the extent incurred by a Selling Party and not reimbursed by a non-related party;

(d) reasonable discounts (including trade, quantity and cash discounts) actually allowed, cash and non-cash coupons, retroactive price reductions, and charge back payments and rebates granted to any non-related party (including to governmental entities or agencies, purchasers, reimbursers, customers, Distributors, wholesalers, and group purchasing organizations and managed care organizations (and other similar entities and institutions)); and

(e) rebates (or their equivalent), administrative fees, chargebacks and retroactive price adjustments and any other similar allowances granted to non-related Parties (including to Governmental Authorities, purchasers, reimbursers, customers, Distributors, wholesalers, and managed care organizations (and other similar entities and institutions)) which effectively reduce the gross invoiced sales price of the Product.

Generally, only items that are deducted from the Selling Party's gross invoiced sales price of Product(s), as included in the Selling Party's published financial statements and that are in accordance with GAAP, applied on a consistent basis, will be deducted from such gross invoiced sales price for purposes of the calculation of Net Sales. However, compulsory payments required by federal or state governments based upon sales volume or market share of Products (but for clarity excluding taxes on the Selling Party's net income), to the extent borne by the Selling Party, will be deducted from "Net Sales" regardless of its classification in the Selling Party's published financial statements; *provided* that any such deduction will be limited to that share of such compulsory payment proportional to the share of the total sales volume or market share of the Selling Party used to compute the compulsory payment represented by applicable Net Sales of Products.

A qualifying amount may be deducted only once regardless of the number of the preceding categories that describe such amount. If a Selling Party makes any adjustment to such deductions after the associated Net Sales have been reported pursuant to this Agreement, the adjustments and payment of any royalties due will be reported with the next quarterly report. Sales between or among Vertex, its Affiliates and Sublicensees will be excluded from the computation of Net Sales if such sales are not intended for end use, but Net Sales will include the subsequent final sales to Third Parties by Vertex or any such Affiliates or Sublicensees. A Product will not be deemed to be sold if the Product is provided free of charge to a Third Party in reasonable quantities as a sample consistent with industry standard promotional and sample practices. For clarity, [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

If a sale, transfer or other disposition with respect to Products involves consideration other than cash or is not at arm's length, then the Net Sales from such sale, transfer or other disposition will be calculated on the [***].

Solely for purposes of calculating Net Sales, if Vertex or its Affiliates or any permitted Sublicensee sells a Product in the form of a combination product containing a Licensed Agent and one or more other therapeutically or prophylactically active ingredients or delivery devices (whether combined in a single formulation or package, as applicable, or formulated separately but packaged under a single label approved by a Regulatory Authority and sold together for a single price) (a "**Combination Product**"), Net Sales of such Combination Product for the purpose of determining the payments due to CRISPR pursuant to this Agreement will be calculated by multiplying actual Net Sales of such Combination Product as determined in the first paragraph of the definition of "Net Sales" by the fraction A/(A+B) where [***]. The weighted average invoice prices referenced above will be calculated with reference to the prevailing prices during the applicable Calendar Quarter in those top selling countries that equate to [***] of Net Sales of the applicable Product in the Territory, with the prices weighted in the calculation to reflect the actual relative sales value of the Product in each of the countries to which the calculation relates. If it is not possible to determine the fraction A/(A+B) based on the criteria specified in the preceding sentence (*e.g.*, if a Product component is not sold separately), the Parties shall determine Net Sales for the Product in such Combination Product in good faith by mutual agreement [***].

1.118 "**[***]**" has the meaning set forth in Section 7.6.2(a).

1.119 "**Non-Breaching Party**" means the Party that believes the other Party is in material breach of this Agreement.

1.120 "**Non-Disclosing Party**" has the meaning set forth in Section 12.5.3.

1.121 "**Option**" has the meaning set forth in Section 4.1.1.

1.122 "**Option Cap**" has the meaning set forth in Section 4.1.1.

1.123 "**Option Deadline**" has the meaning set forth in Section 4.1.1.

1.124 "**Option Exercise**" means, with respect to a Collaboration Target, Vertex's exercise of an Option as provided in Section 4.1.1; *provided*, that if Vertex notifies CRISPR that an HSR Filing is required as provided, in Section 4.1.1, Option Exercise will not occur until the HSR Clearance Date.

1.125 "**Option Exercise Data Package**" means, with respect to a Collaboration Program, a data package containing the information set forth on Schedule C.

1.126 "**Other Joint Program Know-How**" has the meaning set forth in Section 8.1.2(e).

1.127 "**Other Joint Program Patents**" has the meaning set forth in Section 8.1.2(e).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.128 "**Other Joint Program Technology**" has the meaning set forth in Section 8.1.2(e).

1.129 "**Out-of-Pocket Costs**" means, with respect to a Party, costs and expenses paid by such Party to Third Parties (or payable to Third Parties and accrued in accordance with GAAP), other than Affiliates or employees of such Party.

1.130 "**Party**" or "**Parties**" has the meaning set forth in the Preamble.

1.131 "**Patent Coordinator**" has the meaning set forth in Section 8.3.

1.132 "**Patent Costs**" means the reasonable fees and expenses paid to outside legal counsel, and filing, maintenance, disbursement and other reasonable Out-of-Pocket Costs paid to Third Parties, in connection with the Prosecution and Maintenance of Patents.

1.133 "**Patents**" means the rights and interests in and to issued patents and pending patent applications in any country, jurisdiction or region (including inventor's certificates and utility models), including all provisionals, non-provisionals, substitutions, continuations, continuations-in-part, divisionals, renewals and all patents granted thereon, and all reissues, reexaminations, extensions, confirmations, revalidations, registrations and patents of addition thereof, including patent term extensions and supplementary protection certificates, international patent applications filed under the Patent Cooperation Treaty (PCT) and any foreign equivalents to any of the foregoing.

1.134 "**Person**" means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust, incorporated association, joint venture or similar entity or organization, including a government or political subdivision or department or agency of a government.

1.135 "**Phase 2 Clinical Trial**" means any human Clinical Trial conducted in patients that is intended to provide preliminary evidence suggesting effectiveness of the drug, including Clinical Trials described in 21 C.F.R. §312.21(b), or, with respect to a jurisdiction other than the United States, a similar Clinical Trial.

1.136 "**Phase 3 Clinical Trial**" means, with respect to a Product, a pivotal Clinical Trial in humans performed to gain evidence with statistical significance of the efficacy of such Product in a target population, and to obtain expanded evidence of safety for such Product that is needed to evaluate the overall benefit-risk relationship of such Product, to form the basis for approval of an Approval Application by a Regulatory Authority and to provide an adequate basis for physician labeling, as described in 21 C.F.R. 312.21(c), as amended from time to time, or the corresponding regulations in jurisdictions other than the United States.

1.137 "**Price Approval**" means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.138 "**Proceeding**" means an action, suit or proceeding.

1.139 "**Product**" means any pharmaceutical product, medical therapy, preparation, substance, or formulation comprising or employing, in whole or in part, a Licensed Agent. All Products comprising the same Licensed Agent(s) (and no additional Licensed Agents) will be considered the same Product under this Agreement.

1.140 "**[***] Claim**" means a claim in any Patent that [***].

1.141 "**Product Development & Commercialization Plan**" has the meaning set forth in Section 6.4.

1.142 "**Prosecution and Maintenance**" or "**Prosecute and Maintain**" means, with regard to a Patent, the preparing, filing, prosecuting and maintenance of such Patent, as well as handling re-examinations and reissues with respect to such Patent, together with the conduct of interferences, the defense of oppositions and other similar proceedings with respect to the particular Patent. For clarification, "**Prosecution and Maintenance**" or "**Prosecute and Maintain**" will not include any other enforcement actions taken with respect to a Patent.

1.143 "**[***] Patent**" has the meaning set forth in Section 8.2.2.

1.144 "**Receiving Party**" has the meaning set forth in Section 12.1.

1.145 "**Regulatory Approval**" means the technical, medical and scientific licenses, registrations, authorizations and approvals (including approvals of Approval Applications, supplements and amendments, pre- and post- approvals, and labeling approvals) of any Regulatory Authority, necessary for the Research, Development, clinical testing, commercial manufacture, distribution, marketing, promotion, offer for sale, use, import, export or sale of a pharmaceutical product in a regulatory jurisdiction, including Marketing Approval.

1.146 "**Regulatory Authority**" means, with respect to a country in the Territory, any national (*e.g.*, the FDA), supra-national (e.g., the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Price Approvals for pharmaceutical products in such country or countries.

1.147 "**Regulatory Filings**" means, collectively: (a) all INDs, Approval Applications, establishment license applications, Drug Master Files, applications for designation as an "**Orphan Licensed Product(s)**" under the Orphan Drug Act, for "**Fast Track**" status under Section 506 of the FD&C Act (21 U.S.C. § 356) or for a Special Protocol Assessment under Section 505(b)(4)(B) and (C) of the FD&C Act (21 U.S.C. § 355(b)(4)(B)) and all other similar filings (including counterparts of any of the foregoing in any country or region in the Territory); (b) any applications for Regulatory Approval or Price Approval and other applications, filings, dossiers or similar documents submitted to a Regulatory Authority in any country for the purpose of obtaining Regulatory Approval or Price Approval from that Regulatory Authority; (c) all supplements and amendments to any of the foregoing; and (d) any correspondence with Regulatory Authorities in connection with any of the foregoing.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.148 "**Research**" means conducting research activities to discover and advance Licensed Agents and Products, including pre-clinical studies and optimization, but specifically excluding Development and Commercialization. When used as a verb, "**Researching**" means to engage in Research.

1.149 "**Research Budget**" has the meaning set forth in Section 2.2.

1.150 "**Research Costs**" means the costs and expenses that are actually incurred by or on behalf of CRISPR and specifically identifiable or specifically allocable to the Research activities conducted under a Research Plan (including Continuation Research) or an Additional Research Plan, including: (a) CRISPR's and its Affiliates fully absorbed internal costs with respect to such activities; and (b) all Out-of-Pocket Costs incurred by CRISPR or its Affiliates, including payments made to Third Parties with respect to such Research activities (except to the extent that such costs have been included in internal costs). CRISPR's fully absorbed internal costs will be determined at the [***]. All other costs will be determined from the books and records of CRISPR and its Affiliates maintained in accordance with GAAP.

1.151 "**Research Plan**" means each plan meeting the requirements set forth in Section 2.2 to design and optimize Licensed Agents and Products for a specified Target and to generate the data and information required to prepare the applicable Option Exercise Data Package.

1.152 "**Research Term**" has the meaning set forth in Section 2.4.

1.153 "**Residual Knowledge**" means knowledge, techniques, experience and Know-How that are (a) reflected in any Confidential Information owned or Controlled by the Disclosing Party and (b) retained in the unaided memory of any authorized representative of the Receiving Party after having access to such Confidential Information. A Person's memory will be considered to be unaided if the Person has not intentionally memorized the Confidential Information for the purpose of retaining and subsequently using or disclosing it. In no event, however, will Residual Knowledge include any knowledge, techniques, experience and Know-How to the extent (at any time, for such time) within the scope of any valid patent claim owned or Controlled by the Disclosing Party.

1.154 "**Royalty Term**" means, with respect to a Product in a country, the period commencing on the first sale of such Product in such country and ending upon the later of: (a) the expiration of the last Valid Claim of a Licensed Patent that Covers such Product in such country; (b) ten years after the First Commercial Sale of such Product in such country; or (c) expiration of all applicable regulatory exclusivity periods, including data exclusivity, in such country with respect to such Product.

1.155 "**Safety Data Exchange Agreement**" has the meaning set forth in Section 6.6.3.

1.156 "**Selling Party**" has the meaning set forth in Section 1.117.

1.157 "**Setoff Amount**" has the meaning set forth in Section 11.3.3.

1.158 [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.159 "**Shared Product**" has the meaning set forth in Section 6.1.2(a).

1.160 "**Subcontractor**" has the meaning set forth in Section 2.9.

1.161 "**Sublicense**" means, directly or indirectly, to sublicense, grant any other right with respect to, or agree not to assert, any licensed right under any Patent, Know-How or other intellectual property right. When used as a noun, "**Sublicense**" means any agreement to Sublicense.

1.162 "**Sublicensee**" means an Affiliate or Third Party, other than a Distributor, to whom Vertex (or a Sublicensee or Affiliate) sublicenses any of the rights granted to Vertex hereunder during the Agreement Term.

1.163 "**Substitution Cap**" has the meaning set forth in Section 2.3.2(a).

1.164 "**Target**" means a [***] the [***] of which is associated with a human disease and which is to be edited, [***] in order to treat, ameliorate or prevent such disease.

1.165 "**Target Cap**" has the meaning set forth in Section 2.3.2(a).

1.166 "**Target Selection Period**" means the Initial Target Selection Period and the Final Target Selection Period.

1.167 "**[***] Joint Program Know-How**" has the meaning set forth in Section 8.1.2(c).

1.168 "**[***] Joint Program Patents**" has the meaning set forth in Section 8.1.2(c).

1.169 "**[***] Joint Program Technology**" has the meaning set forth in Section 8.1.2(c).

1.170 "**Targeting**" means [***] a Target or the [***] thereof.

1.171 "**Territory**" means all countries of the world.

1.172 "**Third Party**" means any Person other than Vertex, CRISPR or their respective Affiliates.

1.173 "**Third Party Obligations**" means any non-financial encumbrances, obligations, restrictions, or limitations imposed by a CRISPR In-License Agreement or [***] that are required to be passed through to a sublicensee and relate to a Product or a Collaboration Target, including field or territory restrictions, covenants, diligence obligations or limitations pertaining to enforcement of intellectual property rights.

1.174 "**United States**" or "**U.S.**" means the fifty states of the United States of America and all of its territories and possessions and the District of Columbia.

1.175 "**Valid Claim**" means a claim (a) of any issued, unexpired United States or foreign Patent, which will not, in the country of issuance, have been donated to the public, disclaimed, nor held invalid or unenforceable by a court of competent jurisdiction in an unappealed or unappealable decision, or (b) of any United States or foreign patent application,

which will not, in the country in question, have been cancelled, withdrawn or abandoned. Notwithstanding the foregoing, on a country-by-country basis, a patent application pending for more than [***] years, or [***], will not be considered to have any Valid Claim for purposes of this Agreement unless and until a patent meeting the criteria set forth in clause (a) above with respect to such application issues.

1.176 "**Vertex**" has the meaning set forth in the Preamble.

1.177 "**Vertex Activities**" means, under any Research Plan, any and all Research activities that Vertex agrees to conduct and for which it is specifically designated as the responsible Party under the Research Plan.

1.178 "**Vertex Background Know-How**" means any Know-How, other than Joint Program Know-How and Vertex Program Know-How, that (a) Vertex or any of its Affiliates Control as of the Effective Date or that comes into the Control of Vertex or any of its Affiliates during the Agreement Term and (b) [***].

1.179 "**Vertex Background Patents**" means any Patent, other than a Joint Program Patent or Vertex Program Patent that (a) Vertex or any of its Affiliates Control as of the Effective Date or that comes into the Control of Vertex or any of its Affiliates during the Agreement Term and (b) [***].

1.180 "**Vertex Indemnified Party**" has the meaning set forth in Section 10.2.

1.181 "**Vertex Parent**" has the meaning set forth in the Preamble.

1.182 "**Vertex Program Know-How**" has the meaning set forth in Section 8.1.2(b).

1.183 "**Vertex Program Patents**" has the meaning set forth in Section 8.1.2(b).

1.184 "**Vertex Program Technology**" has the meaning set forth in Section 8.1.2(b).

1.185 "**Vertex Share**" has the meaning set forth in Section 7.6.4.

1.186 "**Vertex Target**" has the meaning set forth in Section 2.3.1.

1.187 "**Vertex Target List**" has the meaning set forth in Section 2.3.1.

1.188 "**Vertex Technology**" means (a) the Vertex Background Know-How, (b) the Vertex Background Patents, (c) the Vertex Program Technology, and (d) Vertex's interest in any Joint Program Technology.

1.189 "**Vertex UK**" has the meaning set forth in the Preamble.

ARTICLE 2
RESEARCH

2.1 Collaboration Overview. The Parties will collaborate by performing the activities set forth in each Research Plan for the purpose of designing and optimizing Licensed Agents and Products for Vertex (or with respect to the Shared Products, for the Parties) to advance through Clinical Trials and bring to patients as commercial products in the Field.

2.2 Research Plans. During the Research Term CRISPR and Vertex will conduct Collaboration Programs, each under a separate Research Plan, focused on the design and optimization of Licensed Agents and Products for a specific Collaboration Target. The components of the initial Research Plans to be developed for the Collaboration Targets are attached hereto as Schedule D. Each Research Plan will be generally consistent with such initial Research Plans with respect to the scope and content thereof. The Collaboration Program Working Group will update each ongoing Research Plan and submit the updated Research Plans to the JRC for its review and approval on an as-needed basis, but in no event less than once every [***]. Each Research Plan will include (a) a description of the process and criteria to be used by the Parties to design and optimize Licensed Agents to be used in Products directed to the applicable Collaboration Target, (b) projected timelines for activities under the Research Plan, (c) a budget for activities under such Research Plan (each, a "**Research Budget**"), (d) decision points and associated criteria for the Research Plan, including, without limitation, pre-specified criteria for establishing the elements of the Option Exercise Data Package for the applicable Collaboration Target, (e) a description of which Party will be responsible for each activity under the Research Plan; *provided* that unless otherwise specified in the applicable Research Plan, each Party will be responsible for the activities for which it is listed under the heading "**Responsible Party**" on Schedule C, and (f) the content of an Option Exercise Data Package, and, to the extent practicable, the specific criteria for acceptance of the Option Exercise Data Package (*e.g.*, [***]).

2.3 Target Selection.

2.3.1 Vertex Target List. The Collaboration Targets will be selected from a list of Targets selected by Vertex (each such Target, a "**Vertex Target**," and collectively, the "**Vertex Targets**" and such list, the "**Vertex Target List**"). As of the Effective Date, the initial Collaboration Targets and initial Vertex Targets are included on Schedule B.

2.3.2 Process to Update the Vertex Target List.

(a) Subject to Section 2.3.2(c), Vertex may [***] Targets as Vertex Targets on the Vertex Target List [***] a Target for a Vertex Target on the Vertex Target List (subject to the [***] Cap) upon written notice to CRISPR; *provided* that (i) [***], and (ii) [***] (the "**Target Cap**"). If the [***] to the Vertex Target List would cause the number of Vertex Targets on the Vertex Target List to [***] or if Vertex is [***] during the Final Target Selection Period, such notice also will specify the Vertex Target to be [***] on the Vertex Target List by such [***] Target. Vertex shall be permitted to [***] of (A) [***] and (B) [***] ((A) or (B), as applicable, the "**[***] Cap**").

(b) For the avoidance of doubt, (1) after the Initial Target Selection Period, Vertex may [***] Targets as Vertex Targets and (2) after the first [***] of the Final Target Selection Period Vertex may [***] Targets within the Vertex Target List, in each case, [***]. The Parties will in good faith discuss any request by Vertex during the Research Term to [***] Targets on the Vertex Target List made at any time when Vertex does not have the right to make such [***] under Section 2.3.2(a).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(c) If Vertex proposes to [***] a CRISPR Reserved Target to the Vertex Target List or [***] a CRISPR Reserved Target for a Vertex Target on the Vertex Target List pursuant to Section 2.3.2(a) above, such [***] shall not be effective, and CRISPR shall notify Vertex in writing within [***] after the date on which CRISPR receives notice of the proposed [***], that such Target is a CRISPR Reserved Target. CRISPR shall, if requested by Vertex in writing, [***] and, if CRISPR [***] that such Target is a [***] based, in whole or in part, on [***], it shall so notify Vertex. If after providing [***] Vertex will so notify CRISPR, then CRISPR will, [***]. If CRISPR [***] that such Target is a [***] under [***], Vertex may [***]. The [***] shall promptly [***]. The [***]; *provided*, that if, notwithstanding [***], CRISPR believes that a Target is a CRISPR Reserved Target under paragraph 3 of Schedule A, CRISPR may pursue [***] solely with respect to [***]. If a proposed Target is not [***] due to the provisions of this Section 2.3.2(c), such Target will not count against the Substitution Cap (if applicable) and the Vertex Target on the Vertex Target List that was to be replaced by such Target shall remain on the Vertex Target List (if applicable). If, during the Research Term, any Target excluded from the Vertex Target List pursuant to this Section 2.3.2(c) ceases to be a CRISPR Reserved Target, CRISPR will promptly notify Vertex that such Target is no longer a CRISPR Reserved Target, and, thereafter, Vertex may at its option (exercisable at any time within [***] of such notice) add such Target to the Vertex Target List, subject to the limitations set forth in this Section 2.3.2. Vertex may remove Targets from the Vertex Target List upon written notice to CRISPR and thereafter such removed Target will no longer be a Vertex Target (unless such Target is later added again as a Vertex Target in accordance with this Section 2.3.2).

2.3.3 Collaboration Target Selection. Vertex may elect to designate a Vertex Target as a Collaboration Target at any time during the Research Term upon written notice to CRISPR. Within [***] after the designation of a Collaboration Target, the Collaboration Program Working Group will be formed and will provide the JRC an initial draft Research Plan for such Collaboration Target. Subject to Section 3.1.3, the JRC will review such plan and agree upon a final Research Plan for such Collaboration Target. Collaboration Targets continue to be included as Vertex Targets for purposes of the Target Cap.

2.3.4 [***]. The Parties acknowledge that [***] is included as an Initial Collaboration Target [***]. During the Research Term, CRISPR will periodically disclose to Vertex any material findings generated by CRISPR in connection with CRISPR's internal research supporting the conclusion [***]. Following Vertex's receipt of such data, Vertex may elect to [***], as applicable. If any such [***] (other than [***]) is [***], (a) Vertex will [***] and (b) the Collaboration Program Working Group will prepare a Research Plan for [***] and submit such plan to the JRC for its approval as provided in Section 2.3.3.

2.4 Research Term. The term for the conduct of the Collaboration Programs (the "**Research Term**") will begin on the Effective Date and will end on the earlier of (a) the date on which [***] and [***] with respect to six Collaboration Targets and (b) the [***] of the Effective Date; *provided*, *however*, that if any Research activities under a Research Plan (including any Continuation Research) are incomplete on such [***] (and Vertex has not [***]), the Parties will complete such activities in accordance with the applicable Research Plan, and the Research Term will be extended with respect to such Research Plan(s) for up to [***] to complete such activities

or [***]; and *provided further*, that during any portion of the Research Term after the [***] of the Effective Date, the Vertex Target List will be dissolved and neither Party will have any further obligation under this Agreement (including under Section 2.13.1) with respect to any Vertex Target that was not selected as a Collaboration Target.

2.5 Research Activities. Following the JRC's approval of a Research Plan, each Party will use Commercially Reasonable Efforts to perform activities for which such Party is responsible under such Research Plan in accordance with the timelines set forth therein. Vertex will be responsible for carrying out all Vertex Activities under a Research Plan, and CRISPR will be responsible for carrying out all CRISPR Activities under each Research Plan. Each Party will, and will require its Affiliates and Subcontractors to, comply with all Applicable Laws in its and their conduct of the activities under a Research Plan, including where appropriate cGMP, GCP and GLP (or similar standards). No more than [***] Research Plans shall be conducted at any given time during the Initial Target Selection Period and no more than [***] Research Plans shall be conducted at any given time during the Final Target Selection Period. CRISPR will dedicate such number of FTEs as is reasonably required to perform the CRISPR Activities under the Research Plans during the Target Selection Period, which CRISPR currently anticipates will be no fewer than an average of [***] FTEs to the performance of Research Plans during the Initial Target Selection Period and no fewer than an average of [***] FTEs to the performance of Research Plans during the Final Target Selection Period.

2.6 Option Exercise Data Package. Within [***] after completion of activities under a Research Plan, CRISPR will provide Vertex with an Option Exercise Data Package for the relevant Collaboration Program. Following Vertex's receipt of the Option Exercise Data Package for a Collaboration Program, Vertex may exercise the Option for the relevant Collaboration Target as provided in Section 4.1; *provided*, that if, within [***] after receipt of the Option Exercise Data Package, Vertex notifies the JRC [***] that [***] with respect to [***] should be [***] of such [***] (such notice, a "**[***]**" and such [***]), and either (a) the requested [***] can reasonably be [***] within [***] following the initiation thereof through the use of [***] or (b) the requested [***] cannot reasonably be [***] within [***] following the initiation thereof, but the Parties mutually agree to [***], the Collaboration Program Working Group will meet and in good faith determine such amendments to the Research Plan as are required to define the activities to be conducted in connection with such Continuation Research and will submit such amendments to the JRC for approval. Following the JRC's approval of such amendment, (i) the Parties will conduct the Continuation Research in accordance with Section 2.5, subject to any limitations or conditions that may be agreed to by the Parties in agreeing to conduct the Continuation Research under the foregoing clause (b), (ii) Vertex will fund such activities as provided in Section 2.10 and (iii) the Collaboration Program Working Group will monitor performance of such Continuation Research and meet no less than [***] (or more frequently as determined by the JRC) to discuss the status thereof. Within [***] following the completion of the Continuation Research, CRISPR will provide Vertex with a revised Option Exercise Data Package reflecting the results of the Continuation Research. CRISPR will provide to Vertex any additional Know-How or data Controlled by CRISPR relating to the applicable Collaboration Target as Vertex may reasonably request after delivery of the Option Exercise Data Package. For clarity, the preceding sentence shall not impose any obligation on CRISPR to generate additional Know-How or data.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.7 End of Research Term. At the end of the Research Term, (a) neither CRISPR nor Vertex will have an obligation to perform any additional activities under any Research Plan and (b) CRISPR's obligations and Vertex's rights under this Agreement with respect to any Vertex Target that has not been designated as a Collaboration Target will terminate and the Vertex Target list will be dissolved. For clarity, the expiration of the Research Term will not affect Vertex's rights or CRISPR's obligations with respect to any Collaboration Target for which Vertex has exercised its Option as provided in Section 4.1 or for which the Option Deadline has not occurred.

2.8 Briefing the JRC. At each regularly scheduled meeting of the JRC, which shall be no less frequent than [***], each Party will provide detailed progress updates on activities conducted under each Research Plan along with a summary of data associated with such Research activities under such Research Plans, which updates and summaries will be provided to JRC members at least [***] in advance of any JRC meeting. The agenda for meetings of the JRC will be set by the JRC representatives. Each Collaboration Program will be reviewed by the JRC at minimum every [***].

2.9 Subcontractors. CRISPR may engage consultants, subcontractors, or other vendors (each, a "**Subcontractor**") to perform any work under a Research Plan with Vertex's prior written consent; *provided*, that [***] or (b) identified on Schedule E. Vertex may engage Subcontractors to perform Vertex Activities. Each contract between a Party and a Subcontractor will be consistent with the provisions of this Agreement (including ARTICLE 8 and ARTICLE 12). Each Party will be responsible for the effective and timely management of and payment of its Subcontractors. The engagement of any Subcontractor in compliance with this Section 2.9 will not relieve the applicable Party of its obligations under this Agreement or the Research Plan. Each Party will be solely responsible for any taxes, including income, withholding, payroll, VAT, sales tax or the like, that arise from the use of a Subcontractor.

2.10 Research Costs. Vertex will reimburse CRISPR for Research Costs incurred by CRISPR in accordance with Section 7.4. All costs incurred by Vertex in connection with Vertex Activities will be borne solely by Vertex.

2.11 Transfer of Materials. To facilitate the conduct of activities under each Research Plan, each Party will provide any Materials required by the Research Plan to be transferred to the other Party, and each Party may provide to the other Party certain other Materials. All Materials (a) will remain the sole property of the supplying Party, (b) will be used only in the fulfillment of the receiving Party's obligations or exercise of rights under this Agreement, (c) will remain solely under the control of the receiving Party, (d) will not be used or delivered by the receiving Party to or for the benefit of any Third Party (other than a permitted Subcontractor or Sublicensee) without the prior written consent of the supplying Party, and, (e) except with respect to any Materials provided by CRISPR to Vertex hereunder for use in a Clinical Trial, will not be used in research or testing involving human subjects, unless expressly agreed. Subject to Section 9.2, all Materials supplied under this Section 2.11 are supplied "as is", with no warranties of fitness for a particular purpose and must be used with prudence and appropriate caution in any experimental work, since not all of their characteristics may be known.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.12 Additional Research. At any time following exercise of an Option for a Collaboration Target, Vertex may request that CRISPR provide additional Research services to Vertex, with respect to such Collaboration Target ("**Additional Research**"). Upon such request, the Parties will meet and discuss in good faith whether CRISPR is able to provide those services and a mutually-agreeable plan (the "**Additional Research Plan**"), including a timeline, and budget, which will be subject to the approval of the JRC (the "**Additional Research Budget**") therefor; *provided* that CRISPR may, in its sole discretion, refuse to perform Additional Research. Vertex will reimburse CRISPR for Research Costs incurred in performing activities under the Additional Research Plan as provided in Section 7.4. CRISPR will provide Vertex with the results of any Additional Research promptly following the completion thereof.

2.13 Exclusivity Covenants.

2.13.1 [***]. Subject to Section 2.13.4(a) and Section 2.13.5, during [***], each Party agrees that, except in the performance of its obligations or exercise of its rights under this Agreement, [***] with respect to the discovery, research, development, manufacture or commercialization in the Field of (a) [***] or (b) [***]. For the avoidance of doubt, each Party's obligations under this Section 2.13.1 will terminate (i) with respect to [***] and (ii) with respect to [***].

2.13.2 [***]. Subject to Section 2.13.4(a) and Section 2.13.5, during [***], each Party agrees that, except in the performance of its obligations or exercise of its rights under this Agreement, [***] with respect to the discovery, research, development, manufacture or commercialization in the Field of (a) [***] or (b) [***]. For the avoidance of doubt, each Party's obligations under this Section 2.13.2 will terminate with respect to a [***] upon [***].

2.13.3 [***]. Subject to Section 2.13.4(a) and Section 2.13.5, commencing on the Effective Date and [***] hereunder, [***] with respect to the discovery, research, development, manufacture or commercialization in the Field of (a) [***] or (b) [***]; *provided*, *however*, that notwithstanding the foregoing, during such period, [***].

2.13.4 Cystic Fibrosis.

(a) Notwithstanding anything to the contrary contained herein, the provisions of Sections 2.13.1, 2.13.2 and 2.13.3 will not apply with respect to the discovery, research, development, manufacture or commercialization of any product for the treatment of cystic fibrosis by Vertex or its Affiliates and Vertex and its Affiliates will not be restricted from conducting such activities.

(b) During the Agreement Term, CRISPR agrees that neither it nor any of its Affiliates will work independently or for the benefit of or with any Third Party (including the grant of any license to any Third Party) with respect to the discovery, research, development, manufacture or commercialization of any product containing (a) [***] or (b) [***], *provided* that there is [***].

2.13.5 Delivery Technology. Notwithstanding the provisions of Sections 2.13.1, 2.13.2, 2.13.3 and 2.13.4(b), either Party may, independently or for the benefit of or with any Third Party, discover, research, develop, manufacture or commercialize technology for use in [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.13.6 Acquisition of Distracting Product. Notwithstanding the provisions of Sections 2.13.1, 2.13.2, 2.13.3 and 2.13.4(b), if a Party or any of its Affiliates (such Party, the "**Distracted Party**") acquires rights to research, develop or commercialize a Distracting Product in the Field as the result of a merger, acquisition or combination with or of a Third Party other than a Change of Control (each, an "**Acquisition Transaction**") and, on the date of the completion of such Acquisition Transaction, such Distracting Product is being researched, developed or commercialized and such activities would, but for the provisions of this Section 2.13.6, constitute a breach of Section 2.13.1, 2.13.2, 2.13.3 or 2.13.4(b), as applicable, then the Distracted Party or such Affiliate will, within [***] after the completion of such Acquisition Transaction notify the other Party of such acquisition and either:

(a) request that such Distracting Product be included in this Agreement on terms to be negotiated, in which case, the Parties will discuss the matter in good faith for a period of no less than [***] (or such longer period as may be agreed by the Parties) and, if unable to reach agreement on the terms on which such Distracting Product would be included hereunder within such period, the Distracted Party will elect to take the action specified in either clause (b) or (c) below; *provided* that the time periods specified in such clauses will be tolled for so long as the Parties are engaged in discussion under this clause (a);

(b) notify the other Party that the Distracted Party or its Affiliate will Divest its rights to such Distracting Product, in which case, within [***] after the completion of the Acquisition Transaction, the Distracted Party or its Affiliate will Divest such Distracting Product; or

(c) notify the other Party in writing that it is ceasing all such research, development and commercialization activities with respect to the Distracting Product, in which case, within [***] thereafter the Distracted Party and its Affiliates will cease all such activities.

During the discussion period under clause (a), prior to the time of Divestiture pursuant to clause (b) or prior to the termination of activities pursuant to clause (c), as applicable, the Distracted Party and its Affiliates will use Commercially Reasonable Efforts to segregate all research, development or commercialization activities relating to the Distracting Product from Research, Development and Commercialization with respect to Licensed Agents or Products under this Agreement, including using Commercially Reasonable Efforts to ensure that (i) no personnel involved in performing the research, development or commercialization of such Distracting Product have access to non-public plans or information relating to the Research, Development or Commercialization of Products (*provided* that management personnel may review and evaluate plans and information regarding the Research, Development and Commercialization of Products in connection with portfolio decision-making) and (ii) no personnel involved in performing the Development or Commercialization of Products have access to non-public plans or information relating to the Development or Commercialization of such Distracting

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Product (*provided* that management personnel may review and evaluate plans and information regarding the Development and Commercialization of such Distracting Product in connection with portfolio decision-making).

2.13.7 Change of Control. If there is a Change of Control involving a Party (where such Party is the acquired entity), the obligations of Sections 2.13.1, 2.13.2, 2.13.3 and 2.13.4(b), as applicable, will not apply to any product containing a (a) a [***] or (b) a [***], in each case, that is Controlled by the relevant acquirer or its Affiliates that exists prior to the closing of such Change of Control; *provided* that (i) the acquired Party and the acquirer and its Affiliates existing immediately prior to the effective date of such Change of Control establish and enforce internal processes, policies, procedures and systems to segregate information relating to any such product from any Confidential Information related to the Licensed Agents and Products under this Agreement, (ii) the acquirer and its Affiliates existing immediately prior to the effective date of such Change of Control do not use, directly or indirectly, any Patents, Know-How or Confidential Information of the acquired Party (including any Patents, Know-How or Confidential Information licensed or acquired from the other Party under this Agreement) in connection with such product, and (iii) no personnel who were employees or consultants of the acquired Party or its Affiliates at any time prior to or after the Change of Control will conduct any activities relating to such product.

ARTICLE 3
GOVERNANCE

3.1 Joint Research Committee.

3.1.1 Formation. Within 30 days after the Effective Date, the Parties will establish a joint research committee (the "**Joint Research Committee**" or "**JRC**") to oversee and coordinate activities under this Agreement. The JRC will be comprised of [***] representatives from each Party, with one such representative to have [***]. The JRC will conduct its responsibilities hereunder in good faith and with reasonable care and diligence. The JRC will meet in person at least once each Calendar Quarter on such dates and at such times and places as agreed to by the members of the JRC. The purpose of the JRC will be to provide the members periodic updates regarding progress of activities pursuant to this Agreement and to address the matters set forth in Section 3.1.2. Each Party will be responsible for its own expenses relating to attendance at or participation in JRC meetings.

3.1.2 Responsibilities. The JRC will:

(a) review and approve any initial or amended Research Plan, including the corresponding Research Budget, the planned content of an Option Exercise Data Package, and, to the extent practicable, the specific criteria for acceptance of the Option Exercise Data Package;

(b) prioritize the performance of activities under the Research Plans (including Continuation Research) for Collaboration Targets;

(c) provide comments and recommendations to each Party with respect to the conduct of activities under each Research Plan;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(d) assist in planning and facilitating the transfer of Research responsibility and activities from CRISPR to Vertex upon Option Exercise as needed;

(e) provide a forum for the Parties to discuss the objectives and progress under each Research Plan and to exchange and review scientific information and data relating to the activities being conducted under each Research Plan;

(f) during the [***], discuss the [***];

(g) during the [***], discuss the [***]; and

(h) perform such other duties as are specifically assigned to the JRC under this Agreement.

3.1.3 Decision-Making. The JRC members will use reasonable efforts to reach agreement on any and all matters that the JRC has the authority to decide and endeavor to reach consensus on all such matters, taking into consideration the views of each Party. If the JRC is unable to reach consensus with respect to any such matter within [***], the matter will be referred to the Executive Officers, who will use reasonable efforts to reach agreement on such matter. If such Executive Officers are unable to reach consensus with respect to such matter with [***] after such matter is first referred to such Executive Officers, then [***] will have the right to make the final decision with respect to the relevant matter; *provided* that [***] (i) will take into reasonable consideration the recommendations and concerns raised by [***], (ii) will make such decisions in good faith using reasonable business judgment, which will not be unreasonably delayed, and (iii) will not have the right to: (A) amend, modify or waive compliance with any term or condition of this Agreement; (B) make any decision that is expressly stated to require the mutual agreement of the Parties; (C) resolve any claim or dispute regarding whether or in what amount a payment is owed under this Agreement; (D) exercise its final decision-making authority in a manner that would require [***] to perform any act that [***] reasonably believes would constitute a violation of an Applicable Law; (E) make a determination that a Party is in material breach of any obligation under this Agreement or (F) amend or modify a Research Plan if such amendment or modification would require [***] to expend additional resources, whether internal or external, including capital expenditures for which [***] as provided herein.

3.1.4 Discontinuation of the JRC. The JRC's authority with respect to a given Collaboration Program will continue to exist until the first to occur of (a) the Parties mutually agreeing to terminate the JRC's authority with respect to such Collaboration Program and (b) the completion of all activities under the Research Plan for such Collaboration Program. The JRC will disband when it ceases to have authority over any Collaboration Program pursuant to the preceding sentence.

3.2 Collaboration Program Working Group. Within [***] after Vertex designates a Vertex Target as a Collaboration Target as provided in Section 2.3.3 (or with respect to the Initial Collaboration Targets, within [***] after the Effective Date), the Parties will form a working group (a "**Collaboration Program Working Group**") comprised of an equal number of representatives from each Party having relevant expertise with respect to the given

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Collaboration Program. The Collaboration Program Working Group shall be chaired by a project leader from [***], whose appointment shall be subject to the reasonable approval by [***]. The Collaboration Program Working Group will create the initial Research Plan and Research Budget, the planned content of an Option Exercise Data Package, and, to the extent practicable, the specific criteria for acceptance of the Option Exercise Data Package for the applicable Collaboration Program. The Collaboration Program Working Group will also oversee and coordinate the performance of activities under the Research Plan for such Collaboration Program and perform such other activities as the JRC may delegate to the Collaboration Program Working Group from time to time. Any disputes arising out of the Collaboration Program Working Group will be escalated to the JRC for resolution.

3.3 Other Committees. The Parties may, by mutual agreement, form such other committees or working groups as may be necessary or desirable to facilitate the activities under this Agreement. Any dispute arising from such committees or working groups will be escalated to the JRC for resolution.

3.4 Alliance Managers.

3.4.1 Appointment. Within [***] following the Effective Date each Party will appoint (and notify the other Party of the identity of) a representative of such Party to act as its alliance manager under this Agreement (each an "**Alliance Manager**"). Each Party may replace its Alliance Manager at any time by written notice to the other Party.

3.4.2 Specific Responsibilities. The Alliance Managers may be, but will not be required to be, members of the JRC. The Alliance Managers will serve as the primary contact point between the Parties for the purpose of providing each Party with information regarding the other Parties' activities pursuant to this Agreement and will have the following responsibilities:

(a) schedule meetings of the JRC and circulate draft written minutes from each meeting within [***] after each such meeting;

(b) facilitate the flow of information and otherwise promoting communication, coordination and collaboration between the Parties;

(c) coordinate the various functional representatives of each Party, as appropriate, in developing and executing strategies and plans for Licensed Agents and Products;

(d) provide a single point of communication for seeking consensus both internally within the respective Party's organization and between the Parties regarding key strategy and planning issues;

(e) coordinate and facilitate budget, finance and billing activities as overseen by the JRC; and

(f) perform such other functions as requested by the JRC.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 4
EXCLUSIVE OPTION

4.1 Option.

4.1.1 Option and Option Deadline. CRISPR hereby grants to Vertex and its Affiliates an exclusive option to obtain the Exclusive License with respect a maximum of six Collaboration Targets (each, an "**Option,**" and such six Collaboration Target maximum, the "**Option Cap**"). Within [***] after Vertex's receipt of an Option Exercise Data Package for the applicable Collaboration Program (the "**Option Deadline**"), Vertex will notify CRISPR as to whether or not Vertex is exercising the applicable Option; *provided*, that if, following receipt of the applicable Option Exercise Data Package, Vertex delivers a [***] to the JRC, the Option Deadline will be extended until the date that is [***] after Vertex's receipt of a revised Option Exercise Data Package reflecting the results of the Continuation Research as provided in Section 2.6. If Vertex or its designated Affiliate notifies CRISPR in writing that it wishes to exercise the applicable Option, CRISPR will, and hereby does, grant to Vertex or its designated Affiliate the Exclusive License with respect to Licensed Agents and Products directed to such Collaboration Target and, except with respect to Collaboration Targets that are [***] with respect to such Collaboration Target; *provided*, *however*, if Vertex determines that an HSR Filing is required to be made under the HSR Act to exercise an Option and notifies CRISPR of such determination within [***] after Vertex's receipt of the complete Option Exercise Data Package, the Parties will promptly file an HSR Filing in accordance with Section 4.1.2(a) and Vertex's election to exercise the applicable Option will not be effective (and Vertex will not be obligated to make any payment under Section 7.3.1) until the HSR Clearance Date. If Vertex fails to timely exercise an Option in accordance with this Section 4.1.1, the Option shall expire and be of no further force or effect, both Party's obligations under Section 2.13.1 shall terminate with respect to the relevant Collaboration Target, such Collaboration Target shall no longer be a Collaboration Target nor a Vertex Target and Vertex shall be deemed to have terminated the relevant Collaboration Program for purposes of ARTICLE 11 of this Agreement.

4.1.2 HSR Compliance.

(a) HSR Filing. If Vertex notifies CRISPR pursuant to Section 4.1.1 that an HSR Filing is required for Vertex to receive the Exclusive License with respect to a Collaboration Target, each of Vertex and CRISPR will, within [***] after such notice from Vertex (or such later time as may be agreed to in writing by the Parties), file with the United States Federal Trade Commission ("**FTC**") and the Antitrust Division of the United States Department of Justice ("**DOJ**"), any HSR Filing required with respect to the transactions contemplated hereby. The Parties will cooperate with one another to the extent necessary in the preparation of any such HSR Filing. Each Party will be responsible for its own costs and expenses (other than filing fees, which Vertex will pay) associated with any HSR Filing.

(b) HSR Clearance. In furtherance of obtaining clearance for an HSR Filing filed pursuant to this Section 4.1.2, CRISPR and Vertex will use their respective Commercially Reasonable Efforts to resolve as promptly as practicable any objections that may be asserted with respect to this Agreement or the transactions contemplated by

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

this Agreement under any antitrust, competition or trade regulatory law. In connection with obtaining such HSR clearance from the FTC, the DOJ or any other governmental authority, Vertex and its Affiliates will not be required to (i) sell, divest (including through a license or a reversion of licensed or assigned rights), hold separate, transfer or dispose of any assets, operations, rights, product lines, businesses or interest therein of Vertex or any of its Affiliates (or consent to any of the foregoing actions); or (ii) litigate or otherwise formally oppose any determination (whether judicial or administrative in nature) by a governmental authority seeking to impose any of the restrictions referenced in clause (i) above.

ARTICLE 5
LICENSE GRANTS

5.1 Non-Exclusive Research License from CRISPR to Vertex. Subject to the terms and conditions of this Agreement, CRISPR and, following the Subsidiary Transfer, the CRISPR Subsidiary, hereby grants Vertex UK and its Affiliates a non-exclusive, royalty-free, fully paid-up, worldwide license, with no right to grant sublicenses except to permitted Subcontractors under Section 2.9, to use the Licensed Technology solely to perform the Vertex Activities during the Research Term.

5.2 Non-Exclusive Research and Development License from Vertex to CRISPR. Subject to the terms and conditions of this Agreement, Vertex hereby grants to CRISPR a non-exclusive, royalty-free, fully paid-up, worldwide license, with no right to grant sublicenses except to permitted Subcontractors under Section 2.9, under the Vertex Technology solely to perform Research under the Research Plan for each Collaboration Program during the Research Term.

5.3 License Grants to Vertex.

5.3.1 Development and Commercialization Licenses. Subject to the terms and conditions of this Agreement, on a Collaboration Target-by-Collaboration Target basis, effective upon Vertex's exercise of the Option for a particular Collaboration Target in accordance with this Agreement, CRISPR and, following the Subsidiary Transfer, the CRISPR Subsidiary, grants to Vertex UK and its Affiliates an exclusive (subject to Section 6.1.2(b)), royalty-bearing, license under CRISPR's and its Affiliates' interest in the Licensed Technology to Research, Develop, Manufacture, have Manufactured, use, keep, sell, offer for sale, import, export and Commercialize Licensed Agents and Products directed to the relevant Collaboration Target in the Field in the Territory (such license, the "**Exclusive License**"). Vertex may grant sublicenses through multiple tiers of sublicense to one or more Sublicensees of any and all rights granted to Vertex by CRISPR under the Exclusive License; *provided* that Vertex shall only be permitted to grant a Sublicense to conduct any Commercialization activities with respect to a Licensed Agent or Product [***] with CRISPR's prior written consent, such consent not to be unreasonably withheld, conditioned or delayed; and *provided*, *further*, that no such consent will be needed with respect to any Sublicense (a) granted to a Third Party to conduct Commercialization activities with respect to a Licensed Agent or Product in [***] (and not any other [***]), (b) any Sublicense granted to a Distributor or other Third Party conducting activities on Vertex's behalf or (c) any Sublicensee granted to a Third Party to Manufacture Licensed Agent or Product on

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Vertex's behalf. Each such Sublicense will be subject and subordinate to, and consistent with, the terms and conditions of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement and all Third Party Obligations. Vertex shall promptly provide CRISPR with a copy of the fully executed Sublicense agreement covering any sublicense granted hereunder (which copy may be redacted to remove provisions which are not necessary to monitor compliance with this Section 5.3.1). Notwithstanding the grant of any Sublicense, Vertex shall remain primarily liable to CRISPR for the performance of all of Vertex's obligations under, and Vertex's compliance with all provisions of, this Agreement.

5.3.2 License Conditions; Limitations. Subject to Section 7.6, any rights and obligation hereunder, including the rights granted pursuant to any Exclusive License with respect to a Collaboration Target, are subject to and limited by any applicable Third Party Obligations to the extent the provisions of such obligations or agreements are specifically disclosed to Vertex in writing (or via electronic data room) (a) with respect to Third Party Obligations existing as of the Effective Date, prior to the Effective Date, (b) with respect to Third Party Obligations arising between the Effective Date and the delivery of the relevant Option Exercise Data Package, at the time of delivery of the Option Exercise Data Package and (c) with respect to Third Party Obligations arising after the date the applicable Exclusive License is granted hereunder, on or prior to the date on which such Third Party Obligations arise. Vertex will have the right to [***] any Third Party Patents and Know-How to which such Third Party Obligations [***] by providing CRISPR [***] (with respect to any Third Party Obligations existing at the time the relevant Option Exercise Data Package is delivered) or [***], in which case, such Third Party Patents and Know-How [***] this Agreement. If Vertex does not provide CRISPR [***] Third Party Patents and Know-How as provided above, such Third Party Patents and Know-How [***] under this Agreement and Vertex will be subject to the Third Party Obligations [***].

5.4 Licenses to Improvements.

5.4.1 License to CRISPR. Subject to the terms and conditions of this Agreement, Vertex hereby grants to CRISPR a perpetual, irrevocable, non-exclusive, royalty-free, fully paid-up, worldwide, sublicensable, license to all improvements or modifications to the CRISPR Platform Technology Patents, CRISPR Background Patents (to the extent existing on the Effective Date or otherwise claiming the CRISPR Background Know-How set forth on Schedule F), [***] or CRISPR Background Know-How set forth on Schedule F (as may be supplemented by mutual written agreement of the Parties from time to time), whether or not patentable, that arise in the course of performing activities under a Research Plan or in the course of Developing and Commercializing a Licensed Agent or Product and are Controlled by Vertex or its Affiliates to make, have made, use, sell, keep, offer for sale and import products other than Licensed Agents and Products.

5.4.2 License to Vertex. Subject to the terms and conditions of this Agreement, CRISPR, and, following the Subsidiary Transfer, to the extent necessary, the CRISPR Subsidiary, hereby grants to Vertex a perpetual, irrevocable, non-exclusive, royalty-free, fully paid-up, worldwide, sublicensable, license to all improvements or modifications to the Vertex Background Know-How or Vertex Background Patents, whether or not patentable, that arise in the course of performing activities under a Research Plan and are Controlled by CRISPR or its Affiliates to make, have made, use, sell, keep, offer for sale and import products other than Licensed Agents and Products.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.5 Technology Transfer after Option Exercise.

5.5.1 Transition Agreement. Upon each exercise by Vertex of an Option, the Parties will negotiate and execute an agreement setting forth the Parties' respective obligations with respect to the transfer of data and Materials relating to the relevant Collaboration Target from CRISPR to Vertex, all in accordance with this Section 5.5.

5.5.2 Licensed Know-How. On a Collaboration Target-by-Collaboration Target basis, CRISPR will promptly, but no later than [***] after Vertex exercises its Option for such Collaboration Target hereunder, make available and, at Vertex's request, deliver to Vertex or one or more designated Affiliates all documented Licensed Know-How in CRISPR's possession that has not previously been provided hereunder, for use in accordance with the exercise of the applicable Exclusive License. To assist with the transfer of such Licensed Know-How, CRISPR will make its personnel reasonably available to Vertex during normal business hours to transfer such Licensed Know-How under this Section 5.5.2 and Vertex will reimburse CRISPR for the reasonable costs of such assistance at the FTE Rate within 30 days after its receipt of an invoice therefor.

5.5.3 Transfer of Manufacturing Know-How and Materials. Without limiting CRISPR's obligations under Section 5.5.2, within [***] following the exercise of an Option, and thereafter, promptly following Vertex's request, CRISPR will, or will cause the applicable Third Party (including any contract manufacturing organization engaged by CRISPR to Manufacture any Licensed Agent or Product) to, transfer to Vertex (a) all Licensed Know-How that is necessary or useful to enable the Manufacture of each Licensed Agent or Product for the applicable Collaboration Target, and not previously transferred to Vertex under this Agreement, by providing copies or samples of relevant documentation, materials and other embodiments of such Licensed Know-How, and by making available its, or the applicable Third Party's, qualified technical personnel on a reasonable basis to consult with Vertex with respect to such Licensed Know-How and (b) at Vertex's request, any Materials used by CRISPR or its Affiliates or Subcontractors in the Manufacture of such Licensed Agent or Product.

5.5.4 Transfer of Regulatory Filings and Data. On a Collaboration Target-by-Collaboration Target basis and effective as of the date on which Vertex is granted the Exclusive License for a Collaboration Target, CRISPR will, and hereby does, assign to Vertex any and all Regulatory Filings or any other rights or permissions granted by any Regulatory Authority to Vertex related to any Licensed Agent or Product directed to such Collaboration Target, together with all Research, Development and Manufacturing data relating to such Collaboration Target, in each case, not previously assigned by CRISPR to Vertex. Further, CRISPR will take all actions and provide all assistance reasonably requested by Vertex to effect the assignments in this Section 5.5.4.

5.5.5 Right of Reference. Vertex hereby grants to CRISPR the right to rely upon and a right to copy, access, and otherwise use, all Adverse Event information pertaining to each Product as reasonably required in connection with the Development and Commercialization

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(subject to Section 2.13) of products, and Vertex shall, if requested by CRISPR, provide a signed statement that CRISPR may rely on, and the Regulatory Authority may access, in support of CRISPR's application for Regulatory Approval of such products.

5.6 No Implied Licenses. All rights in and to Licensed Technology not expressly licensed or assigned to Vertex under this Agreement are hereby retained by CRISPR or its Affiliates. All rights in and to any Vertex Technology not expressly licensed to CRISPR under this Agreement, are hereby retained by Vertex or its Affiliates. Except as expressly provided in this Agreement, no Party will be deemed by estoppel or implication to have granted the other Party any licenses or other right with respect to any intellectual property.

ARTICLE 6
PROFIT/LOSS SHARING, DEVELOPMENT, MANUFACTURING AND COMMERCIALIZATION

6.1 CRISPR Profit/Loss Sharing.

6.1.1 Profit/Loss Sharing. CRISPR will jointly (with Vertex or Affiliate(s) designated by Vertex) Research, Develop and Commercialize Products containing (a) any Licensed Agent directed to a Collaboration Target that is a Hemoglobinopathy Target or (b) [***] and, in each case, for which Vertex has obtained the Exclusive License, as provided herein, unless, in each case, CRISPR exercises an Opt-Out in accordance with Schedule G.

6.1.2 Effects of Co-Commercialization. For each Collaboration Target set forth in clauses (a) or (b) of Section 6.1.1:

(a) each Product for the relevant Collaboration Target will be deemed a "**Shared Product**";

(b) the Exclusive License with respect to the relevant Collaboration Target will become co-exclusive (with CRISPR);

(c) within [***] after Vertex has exercised the Option to obtain the Exclusive License for such Collaboration Target, CRISPR and Vertex (or any Affiliates designated by Vertex) will enter into an agreement (the "**Joint Development & Commercialization Agreement**"), which the Parties will negotiate in good faith and which will include appropriate plans and budgets, for the joint Development and Commercialization of Shared Products (or provisions for establishing such plans) and will include (i) terms and conditions that are substantially the same as those set forth in Schedule G and (ii) other reasonable and customary provisions for transactions of this type as the Parties may agree. If the terms of this Agreement conflict with the terms of the Joint Development & Commercialization Agreement, the terms of the Joint Development & Commercialization Agreement will control with respect to the Collaboration Program that is the subject thereof and the terms of this Agreement will control with respect to all other matters; and

(d) [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

6.2 Responsibility. Following an Option Exercise, Vertex will be solely responsible for all Research, Development, Manufacturing and Commercialization of Licensed Agents and Products for the relevant Collaboration Target that are performed after the date on which the Option was exercised and for all costs and expenses associated therewith, except (a) as may be otherwise provided in a Joint Development & Commercialization Agreement, (b) with respect to any incomplete activities under the relevant Research Plan or any agreed-upon Additional Research and (c) for the transfer of activities to Vertex as contemplated by Section 5.5.

6.3 Vertex Diligence.

6.3.1 Development Diligence. Except with respect to Shared Products, following Vertex's exercise of the Option for a Collaboration Target, Vertex (acting directly or through one or more Affiliates or Sublicensees) will use Commercially Reasonable Efforts to Develop, obtain Marketing Approvals for [***] in [***].

6.3.2 Commercial Diligence. Except with respect to Shared Products, Vertex (acting directly or through one or more Affiliates or Sublicensees) will use Commercially Reasonable Efforts to Commercialize, including seeking Price Approval on appropriate terms, [***] in [***].

6.4 Product Development & Commercialization Plan. On a Collaboration Program-by-Collaboration Program basis, Vertex will prepare a Development and Commercialization plan setting forth in reasonable detail (which detail shall be at least sufficient for CRISPR to evaluate Vertex's compliance with its obligations under this Agreement) Vertex's plans for (a) the Development of each Product for the relevant Collaboration Target through Clinical Trials designed to show Establishment of POC, (b) starting after Establishment of POC, the Development of each Product through Marketing Approval and (c) starting upon Marketing Approval for a Product and continuing thereafter until the expiration of the applicable Royalty Term, Commercialization for the Product, as appropriate for the stage of the Product, including a launch plan for each Major Market Country (each, an "**Product Development & Commercialization Plan**"). If Vertex is Developing or Commercializing more than one Product directed to a Collaboration Target, the Product Development & Commercialization Plan will include the foregoing information for each such Product. Vertex will prepare the initial Product Development & Commercialization Plan for a Collaboration Program no later than [***] after Option Exercise by performing the activities set forth in each Research Plan for the relevant Collaboration Target. Once Vertex has prepared such Product Development & Commercialization Plan, Vertex will update such plan no less than [***] so that such Product Development & Commercialization Plan is an accurate reflection of Vertex's then-current plans with respect to the Development and Commercialization of the relevant Product and Vertex will provide such updates to CRISPR for its review. All Product Development & Commercialization Plans are provided solely for informational purposes, and Vertex's failure to follow a Product Development & Commercialization Plan will not constitute a breach of this Agreement. Notwithstanding the foregoing, Vertex will have no obligation under this Section 6.4 with respect to any Shared Product.

6.5 Applicable Laws. Each Party will, and will require its Affiliates, Sublicensees and Subcontractors to, comply with all Applicable Law in its and their Research, Development, Manufacture and Commercialization of Products, including where appropriate cGMP, GCP and GLP (or similar standards).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

6.6 Regulatory Matters; Safety Data Exchange Agreement.

6.6.1 Responsibilities. Vertex or its designated Affiliates and Sublicensees will have the sole authority to prepare and file Regulatory Filings, each in its own name, and applications for Regulatory Approval and Price Approval for any and all Licensed Agents and Products directed to each Collaboration Target, and will have the sole responsibility for communicating with any Regulatory Authority both prior to and following Regulatory Approval and Price Approval, including all communications and decisions with respect to (a) pricing of Products and (b) the negotiation of Product pricing with Regulatory Authorities and other Third Parties.

6.6.2 Ownership. Ownership of all right, title and interest in and to any and all Regulatory Filings, Regulatory Approvals and Price Approvals directed to any Licensed Agent or any Product directed to each Collaboration Target in each country of the Territory will be held in the name of Vertex, its Affiliate, designee or Sublicensee.

6.6.3 Pharmacovigilance. Upon Vertex's request, the Parties will negotiate and enter into a separate safety data exchange agreement (a "**Safety Data Exchange Agreement**"). The Safety Data Exchange Agreement will set forth guidelines and procedures for the receipt, investigation, recording, review, communication, reporting and exchange between the Parties of adverse event reports (which, for purposes of information exchange between the Parties, will include adverse events and serious adverse events, and any other information concerning the safety of any Product or Licensed Agent and, with respect to information provided by CRISPR, concerning the safety of products containing a [***] or [***]). Without limiting the foregoing, the Parties will meet to establish a safety oversight working group comprised of members of both Parties, which, except as otherwise provided in the Safety Data Exchange Agreement, will discuss processes and procedures for sharing information needed to support each Party's regulatory responsibilities and to comply with applicable regulatory pharmacovigilance requirements. Any such procedures will not be construed to restrict either Party's ability to take any action that it deems to be appropriate or required of it under the applicable regulatory requirements, if permitted by Applicable Laws. Vertex (a) will maintain a unified worldwide adverse event database for Products, and be responsible for reporting adverse events and serious adverse events to the applicable Regulatory Authorities and (b) will be responsible for all signal detection and risk management activities and will develop and approve the contents of all safety communications to Regulatory Authorities, including but not limited to expedited non-clinical and clinical safety reports and aggregate reports to health authorities, institutional review boards and ethics committees.

6.7 Commercialization.

6.7.1 General. Vertex will have sole and exclusive control over all matters relating to the Commercialization of Products, except as may be otherwise provided in a Joint Development & Commercialization Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

6.7.2 Branding. Vertex or its designated Affiliates or Sublicensees will select and own all trademarks used in connection with the Commercialization of any and all Products. CRISPR will not use nor seek to register, anywhere in the world, any trademark that is confusingly similar to any trademark used by or on behalf of Vertex, its Affiliates or Sublicensees in connection with any Product.

6.8 Manufacturing. Vertex will have the exclusive right to Manufacture and supply Licensed Agents and Products itself or through one or more Affiliates or Third Parties selected by Vertex in its sole discretion. The Parties may share information relating to the Manufacture of Products, and other products to be commercialized by CRISPR, to determine whether and how to leverage their respective manufacturing efforts, but shall have no obligation hereunder to enter into an agreement with respect thereto.

ARTICLE 7
FINANCIAL PROVISIONS

7.1 Up-Front Fee to CRISPR AG (Switzerland). Within four Business Days following the Effective Date, Vertex UK will pay CRISPR AG a one-time, non-refundable, non-creditable, upfront fee of $75,000,000 payable by wire transfer of immediately available funds.

7.2 [***]. if Vertex [***], Vertex will [***] within [***] after Vertex notifies CRISPR that it is [***]. The [***] that are [***].

7.3 Milestone Payments.

7.3.1 Development Milestones. Subject to Section 7.3.4, Vertex will pay CRISPR the milestone payments set forth in this Section 7.3.1 with respect to each Collaboration Target [***], whether such milestone event is achieved by CRISPR, Vertex or their respective Affiliates or any Sublicensees. Each milestone payment set forth below, is payable only once per Collaboration Target, regardless of the number of Products directed to such Collaboration Target that achieve the relevant milestone event.

Milestone Number	Milestone Event	Milestone Payment
1	Option Exercise for a Collaboration Target	$10,000,000
2	Filing of an IND for a Product with a Regulatory Authority in a Major Market Country	$10,000,000
3	Initiation of the first Clinical Trial of a Product	$10,000,000
4	Establishment of POC for a Product	$30,000,000
5	Initiation of the first Phase 3 Clinical Trial of a Product	[***]
6	Acceptance of Approval Application by the FDA for a Product	[***]
7	Acceptance of Approval Application by the EMA for a Product	[***]
8	Acceptance of Approval Application by a Regulatory Authority in Japan for a Product	[***]
9	Marketing Approval in the US for a Product	[***]
10	Marketing Approval in EU for a Product	[***]
11	Marketing Approval in Japan for a Product	[***]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.3.2 Commercial Milestones. Subject to Section 7.3.4, Vertex will pay CRISPR the milestone payments set forth in this Section 7.3.2 with respect to each Collaboration Target [***], whether such milestone event is achieved by Vertex or its Affiliates or any of their Sublicensees. Each milestone payment set forth below, is payable only once per Collaboration Target, regardless of the number of Products directed to such Collaboration Target that achieve the relevant milestone event or the number of times Product(s) achieve such milestone event.

Milestone Number	Milestone Event	Milestone Payment
12	Annual Net Sales for Products with respect to a Collaboration Target exceed $500,000,000	[***]
13	Annual Net Sales for Products with respect to a Collaboration Target exceed $1,000,000,000	[***]

7.3.3 Notice; Payment; Skipped Milestones. Vertex will provide CRISPR with written notice upon the achievement of each of the milestone events set forth in Section 7.3.1 or 7.3.2, such notice to be provided, (a) with respect to milestones under Section 7.3.1, within [***] after achievement, and (b) with respect to milestones under Section 7.3.2, [***] for the Calendar Quarter in which such milestone is first achieved. Following receipt of such notice, CRISPR will promptly invoice Vertex for the applicable milestone and Vertex will make the appropriate milestone payment within [***] after receipt of such invoice. The milestones numbered [***] as set forth in Section 7.3.1 are intended to be successive; if a Product for a Collaboration Target is not required to undergo the event associated with any such milestone event, such skipped milestone will be deemed to have been achieved upon the achievement by such Product of the next successive milestone event. Payment for any such skipped milestone that is owed in accordance with the provisions of the foregoing sentence with respect to a given Product will be due concurrently with the payment for the next successive milestone event by such Product, it being agreed that if a Product for a Collaboration Target is not required to undergo the milestone numbered [***], the corresponding payment will be made upon the first to occur of the milestones numbered [***].

7.3.4 Failure to Obtain Necessary Agreements. If, at the time any milestone event under Section 7.3.1 or Section 7.3.2 is achieved, CRISPR has not obtained all necessary consents and agreements and taken all actions provided for under Section 9.3.10, [***].

7.4 Research Costs.

7.4.1 As soon as practicable, but in any event within [***] after the end of each [***], CRISPR will provide Vertex with a flash report estimating reimbursable Research Cost, if any, incurred by it and its Affiliates during the just-ended [***].

7.4.2 Within [***] after the end of each [***], CRISPR will submit to Vertex an itemized report of Research Costs, if any, incurred by CRISPR and its Affiliates during such [***] (the "**Cost Report**"), including reasonable supporting documentation.

7.4.3 Vertex will reimburse CRISPR for all Research Costs in accordance with the applicable Research Budget or Additional Research Budget within [***] after its receipt of

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

the applicable Cost Report. If the Research Costs for a Research Plan or Additional Research Plan exceed the applicable Research Budget or Additional Research Budget, CRISPR may include such excess costs in the applicable Cost Report, and Vertex will reimburse such excess costs, [***].

7.4.4 Notwithstanding anything to the contrary contained herein, except as may be otherwise provided in a Joint Development & Commercialization Agreement, Vertex will not be obligated to reimburse CRISPR for any Research Costs incurred in connection with the Research of a Shared Product following Option Exercise for the relevant Collaboration Program.

7.5 Royalties.

7.5.1 Royalty Rates. Subject to Sections 7.5.2, 7.5.3 and 7.5.4, on a Product-by-Product and country-by-country basis, Vertex will pay CRISPR royalties based on the aggregate Net Sales of each Product sold by Vertex, its Affiliates or Sublicensees in the Field in the Territory during a Calendar Year at the rates set forth in the table below; *provided*, that Vertex will have no obligation under this Section 7.5.1 with respect to any Shared Product. The obligation to pay royalties will be imposed only once with respect to the same unit of a Product.

Calendar Year Net Sales (in Dollars) for such Product in the Territory	**Royalty Rates as a Percentage (%) of Net Sales**
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

7.5.2 Royalty Term. Vertex will pay royalties to CRISPR under this Section 7.5 on a Product-by-Product and a country-by-country basis during the Royalty Term. Upon the expiration of the Royalty Term for a given Product in a given country, the Exclusive License with respect to such Product will become fully-paid, perpetual and irrevocable.

7.5.3 [***]Generic Competition. If one or more Generic Products with respect to a Product is marketed and sold in a given country by one or more Third Parties during any Calendar Quarter during the Royalty Term and the [***] of such Product sold during such Calendar Quarter have [***] relative to average quarterly sales ([***]) of such Product in such country during the [***] Calendar Quarters immediately prior to the Calendar Quarter during which such Generic Product(s) was first marketed and sold in such country, then the royalty rate for such Product in such country, on a Product-by-Product and country-by-country basis, will thereafter be [***] of the applicable royalty rate set forth in Section 7.5.1 for so long as such reduction in [***] persists.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.5.4 Third Party Licenses. Vertex may [***] from the royalties payable to CRISPR under this Section 7.5 the following amounts: (a) [***]; (b) [***]; and (c) [***]; *provided*, *however*, that in no event will the royalties that would otherwise be payable to CRISPR, as reduced by Section 7.5.3 [***] under this Section 7.5.4; and *provided further*, that Vertex will be entitled to [***] any amounts with respect to which Vertex would have been [***] pursuant to this Section 7.5.4 but [***] in this Section 7.5.4.

7.5.5 [***]. If, at the time any royalties are payable pursuant to Section 7.5, [***].

7.5.6 Royalty Reports. During the Agreement Term, following the first sale of a Product (other than a Shared Product) giving rise to Net Sales, within [***] after the end of each Calendar Quarter, Vertex will deliver a report to CRISPR specifying on a Product-by-Product and country-by-country basis: (a) gross sales in the relevant Calendar Quarter, (b) Net Sales in the relevant Calendar Quarter, including an accounting of deductions applied to determine Net Sales; (c) a summary of the then-current exchange rate methodology then in use by Vertex, and (d) royalties payable on such Net Sales. All royalty payments due under Section 7.5 for each Calendar Quarter will be due and payable within [***] after Vertex's delivery of the applicable report under this Section 7.5.5.

7.6 CRISPR In-License Agreements; [***].

7.6.1 CRISPR In-License Agreements. Certain of the Licensed Technology Controlled by CRISPR or CRISPR Affiliates as of the Effective Date was in-licensed or acquired by CRISPR under the agreements with Third Party licensors or sellers listed on Schedule H (such agreements, together with each consent and agreement obtained by CRISPR pursuant to Section 9.3.10, the "**CRISPR In-License Agreements**"). Subject to Section 10.1, [***].

7.6.2 [***].

(a) Certain Licensed Technology [***] during the Term pursuant to [***]. For any [***] pursuant to which [***], CRISPR will use Commercially Reasonable Efforts to ensure that [***] with the same [***] (including the right for Vertex [***] would be [***] and [***], [***] and other potential or actual [***]. If CRISPR is [***], (a) CRISPR will so notify Vertex, and the Parties will [***] and (b) CRISPR will not [***].

(b) Notwithstanding anything to the contrary contained herein, if, following Vertex's exercise of the Option for a particular Collaboration Target, Vertex believes, in its reasonable judgment, that it may be necessary to obtain rights under any Patent having claims which Cover Licensed Agents or Products that are the subject of the Option, Vertex shall have the right to negotiate a license to such Patent.

7.6.3 [***]. Vertex shall [***] by Vertex, its Affiliates or Sublicensees. If the [***] based on the [***] across such [***] by Vertex, its Affiliates or Sublicensees. [***] with and to the extent [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.6.4 [***]. Subject to Section [***], [***] arising under any [***]. [***] shall take into consideration the [***]. [***], the matter shall [***]. [***] if and when such [***].

7.6.5 [***]. If CRISPR [***] which provides [***] set forth on [***], then, [***], [***]

7.6.6 [***]. Notwithstanding the foregoing provisions of this Section 7.6, Vertex may [***] with respect to one or more [***] and, thereafter, [***].

7.7 Payment Method; Currency.

7.7.1 All payments under this Agreement will be paid in U.S. Dollars, by wire transfer to an account designated by CRISPR (which account CRISPR may update from time to time in writing).

7.7.2 If any amounts that are relevant to the determination of amounts to be paid under this Agreement or any calculations to be performed under this Agreement are denoted in a currency other than U.S. Dollars, then such amounts will be converted to their U.S. Dollar equivalent using Vertex's then-current standard procedures and methodology, including its then-current standard exchange rate methodology for the translation of foreign currency expenses into U.S. Dollars or, in the case of Sublicensees, such similar methodology, consistently applied.

7.8 Withholding Tax. Where any sum due to be paid to CRISPR hereunder is subject to any withholding or similar tax, Vertex will pay such withholding or similar tax to the appropriate Government Authority and deduct the amount paid from the amount then due CRISPR, in a timely manner and promptly transmit to CRISPR an official tax certificate or other evidence of such withholding sufficient to enable CRISPR to claim such payment of taxes. The Parties agree to cooperate with one another and use reasonable efforts to reduce or eliminate tax withholding or similar obligations in respect of royalties, milestone payments, and other payments made by Vertex to CRISPR under this Agreement. CRISPR will provide Vertex any tax forms that may be reasonably necessary in order for Vertex not to withhold tax or to withhold tax at a reduced rate under an applicable bilateral income tax treaty. Each Party will provide the other with reasonable assistance to enable the recovery, as permitted by Applicable Laws, of withholding taxes, value added taxes, or similar obligations resulting from payments made under this Agreement, such recovery to be for the benefit of the Party bearing such withholding tax or value added tax.

7.9 Records. During the Agreement Term, Vertex will keep and maintain accurate and complete records regarding Net Sales during the [***] preceding Calendar Years and CRISPR will keep and maintain accurate and complete records regarding the Research Cost covering the [***] preceding Calendar Years. Upon [***] prior written notice from the other Party (the "**Auditing Party**"), the Party required to maintain such records (as applicable, the "**Audited Party**") will permit an independent certified public accounting firm of internationally recognized standing, selected by the Auditing Party and reasonably acceptable to the Audited Party, to examine the relevant books and records of the Audited Party and its Affiliates, as may be reasonably necessary to verify the royalty reports submitted by Vertex in accordance with Section 7.5.5, or Research Cost reported by CRISPR in accordance with Section 7.4, as

applicable. An examination by the Auditing Party under this Section 7.9 will occur not more than [***] in any Calendar Year and will be limited to the pertinent books and records for any Calendar Year ending not more than [***] before the date of the request. The accounting firm will be provided access to such books and records at the Audited Party's facility or facilities where such books and records are normally kept and such examination will be conducted during the Audited Party's normal business hours. The Audited Party may require the accounting firm to sign a customary non-disclosure agreement before providing the accounting firm access to its facilities or records. Upon completion of the audit, the accounting firm will provide both the Auditing Party and the Audited Party a written report disclosing whether the reports submitted by Vertex, or the Research Cost reported by CRISPR, as applicable, are correct or incorrect and the specific details concerning any discrepancies. No other information will be provided to the Auditing Party. If the report or information submitted by the Audited Party results in an underpayment or overpayment, the Party owing underpaid or overpaid amount will promptly pay such amount to the other Party, and, if, as a result of such inaccurate report or information, such amount is more than [***] of the amount that was owed the Audited Party will reimburse the Auditing Party for the reasonable expense incurred by the Auditing Party in connection with the audit.

7.10 Late Payment. Any payments or portions thereof due hereunder that are not paid when due will accrue interest from the date due until paid at an annual rate equal to [***] (or the maximum allowed by Applicable Law, if less).

ARTICLE 8
INTELLECTUAL PROPERTY

8.1 Ownership; Assignment. For the avoidance of doubt, the rights and obligations of the Parties under this ARTICLE 8 are subject to and limited by any applicable Third Party Obligations to the extent the provisions of such obligations or agreements are specifically disclosed to Vertex in writing (or via electronic data room) (a) with respect to Third Party Obligations existing as of the Effective Date, prior to the Effective Date, (b) with respect to Third Party Obligations arising between the Effective Date and the delivery of the relevant Option Exercise Data Package, at the time of delivery of the Option Exercise Data Package and (c) with respect to Third Party Obligations arising after the date the applicable Exclusive License is granted hereunder, on or prior to the date on which such Third Party Obligations arise.

8.1.1 CRISPR Technology and Vertex Technology. As between the Parties, CRISPR will own and retain all of its rights, title and interest in and to the CRISPR Background Know-How, CRISPR Background Patents and CRISPR Platform Technology Patents and Vertex will own and retain all of its rights, title and interest in and to any Vertex Background Know-How and Vertex Background Patents, subject to any assignments, rights or licenses expressly granted by one Party to the other Party under this Agreement.

8.1.2 Agreement Technology.

(a) As between the Parties, CRISPR will be the sole owner of any Know-How discovered, developed, invented or created solely by CRISPR or its Affiliates or Third Parties acting on their behalf in connection with activities under this Agreement

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

("**CRISPR Program Know-How**") and any Patents that cover or claim such Know-How ("**CRISPR Program Patents**" and together with the CRISPR Program Know-How, the "**CRISPR Program Technology**"), and will retain all of its rights, title and interest thereto, subject to any assignment, rights or licenses expressly granted by CRISPR to Vertex under this Agreement.

(b) As between the Parties, Vertex will be the sole owner of any Know-How discovered, developed, invented or created solely by Vertex or its Affiliates or Third Parties acting on their behalf in connection with activities under this Agreement ("**Vertex Program Know-How**") and any Patents that cover or claim Vertex Program Know-How ("**Vertex Program Patents**" and together with the Vertex Program Know-How, the "**Vertex Program Technology**"), and will retain all of its rights, title and interest thereto, subject to any rights or licenses expressly granted by Vertex to CRISPR under this Agreement.

(c) (i) [***]: Any Know-How discovered, developed, invented or created jointly under this Agreement by both (a) Vertex, its Affiliates or Third Parties acting on Vertex's behalf and (b) CRISPR, its Affiliates or Third Parties acting on CRISPR's behalf, while conducting activities under this Agreement, to the extent [***] ("**[***] Joint Program Know-How**"), and any Patents that [***] ("**[***] Joint Program Patents,**" and together with the [***] Joint Program Know-How, the "**[***] Joint Program Technology**"), will be owned [***], including all rights, title and interest thereto, subject to any assignment, rights or licenses expressly granted by one Party to the other Party under this Agreement. Except as expressly provided in this Agreement, [***] with respect to, or to [***] Joint Program [***], and each Party hereby [***].

(ii) [***]: All [***] Joint Program Know-How, [***] Joint Program Patents, and [***] Joint Program Technology, in each case to the extent pertaining to [***], will be [***]. Within [***], [***] will, and hereby [***], [***] or [***] designated Affiliates, [***] Joint Program Patents. [***] will take all actions and provide [***] with all [***] and will [***].

(d) Any Know-How discovered, developed, invented or created jointly under this Agreement by both (a) Vertex, its Affiliates or Third Parties acting on Vertex's behalf and (b) CRISPR, its Affiliates or Third Parties acting on CRISPR's behalf, while conducting activities under this Agreement, to the extent pertaining to [***] but not exclusively pertaining to [***] ("**[***] Joint Program Know-How**"), and any Patents that claim or cover such [***] Joint Program Know-How ("**[***] Joint Program Patents,**" and together with the [***] Joint Program Know-How, the "**[***] Joint Program Technology**"), will be [***]. [***] will, and hereby does, assign to [***] or one or more of its designated Affiliates, [***] ownership interest in all [***] Joint Program Patents. Within [***], [***]will take all actions and provide [***] with all reasonably requested assistance to effect such assignment and will execute any and all documents necessary to perfect such assignment. Any Patents [***] under this Section [***]. In addition, [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(e) Any Know-How discovered, developed, invented or created jointly under this Agreement by both (a) Vertex, its Affiliates or Third Parties acting on Vertex's behalf and (b) CRISPR, its Affiliates or Third Parties acting on CRISPR's behalf, while conducting activities under this Agreement, that is not [***] Joint Program Know-How or [***] Joint Program Know-How (the "**Other Joint Program Know-How**"), and any Patents that solely claim or cover such Other Joint Program Know-How (the "**Other Joint Program Patents,**" and together with the Other Joint Program Know-How, the "**Other Joint Program Technology**"), will be [***], including all rights, title and interest thereto, subject to any assignment, rights or licenses expressly granted by one Party to the other Party under this Agreement. Except as expressly provided in this Agreement, neither Party will have any obligation [***] with respect to, or to [***], Other Joint Program Technology by reason of [***] thereof, and each Party [***] the laws of any jurisdiction [***]. If such [***], each Party [***] to the [***] without [***] other Party. Notwithstanding the foregoing, if either Party [***] such Other Joint Program Technology, it shall [***] of the other Party, such [***].

(f) CRISPR will promptly disclose to Vertex in writing, and will cause its Affiliates to so disclose, the discovery, development, invention or creation of any CRISPR Program Technology under this Agreement. In addition, each Party will promptly disclose to the other Party in writing, and will cause its Affiliates to so disclose, the discovery, development, invention or creation of any Joint Program Technology under this Agreement.

8.1.3 [***] CRISPR Product-Specific Patents to [***].

(a) Within [***] following the exercise of an Option by Vertex, if not previously completed by [***], CRISPR will [***], including without limitation a [***] as defined below, or as a new case to be determined by [***], consisting of [***] for the [***] that are [***] (each such [***]). Upon Vertex's exercise of an Option, all [***] will no longer be [***] and will thereafter be [***].

(b) Effective upon and following Vertex's exercise of the Option for a particular Collaboration Target, CRISPR will, and hereby does, [***] related to [***] that are [***] (whether [***]), and thereafter [***] will have [***]. CRISPR will take all actions and provide Vertex with [***] and will [***]. Any [***] under this Section 8.1.3(b) will be excluded [***] but will be included in the [***] for purposes of determining the [***].

8.1.4 [***] CRISPR. Effective upon [***] pursuant to Section 8.1.3, Vertex will, [***], [***] any such [***] to (a) conduct activities [***], (b) conduct [***] and

(a) [***].

8.2 Prosecution and Maintenance of Patents. The Parties hereby agree as follows with respect to the Prosecution and Maintenance of certain Patents, for the avoidance of doubt, in each case, subject to Third Party Obligations.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

8.2.1 CRISPR Platform Technology Patents. Anything herein to the contrary notwithstanding, and subject to Section 8.2.5, CRISPR will control and be responsible for all aspects of the Prosecution and Maintenance of the CRISPR Platform Technology Patents.

8.2.2 CRISPR Patents. CRISPR will control and be responsible for all aspects of the Prosecution and Maintenance of CRISPR Background Patents, CRISPR Program Patents, [***] Patents and [***] Program Patents. CRISPR will use Commercially Reasonable Efforts to Prosecute and Maintain all CRISPR Background Patents, CRISPR Program Patents, [***] Patents, other Joint Program Patents if applicable, and [***] Joint Program Patents, in each case to the extent Covering Licensed Agents or Products directed to particular Collaboration Targets using counsel reasonably acceptable to Vertex. In advance of Option Exercise for a particular Collaboration Target (*i.e.*, during the course of and in connection with each Research Plan conducted by the Parties under this Agreement), (a) CRISPR will undertake the Prosecution and Maintenance of one or more patent applications which could claim [***] Claims to the extent permitted by applicable law (each such Patent a "**[***] Patent**") and (b) prior to the filing of any Patent application that Covers Licensed Agents or Products, the Patent Coordinators will meet and in good faith discuss the best strategy for such filing (which, for clarity may [***] Patents). The Parties will use good faith efforts to agree on such strategy, with the goal of maximizing the value of the Parties' respective patent portfolios.

8.2.3 Vertex Patents. Vertex will control and be responsible for all aspects of the Prosecution and Maintenance of all Vertex Background Patents, Vertex Program Patents, [***] and [***] Joint Program Patents. Vertex will use Commercially Reasonable Efforts to Prosecute and Maintain all [***] Patents and [***] Joint Program Patents, if applicable, using counsel reasonably acceptable to CRISPR.

8.2.4 Other Joint Program Patents. The Parties will discuss and agree upon an allocation of responsibility for the prosecution and maintenance of the Other Joint Program Patents.

8.2.5 Other Matters Pertaining to Prosecution and Maintenance of Patents.

(a) Each Party will keep the other Party informed through their respective Patent Coordinators as to material developments with respect to the Prosecution and Maintenance of the CRISPR Platform Technology Patents, CRISPR Background Patents, CRISPR Program Patents, [***] Patents and Joint Program Patents for which such Party has responsibility for Prosecution and Maintenance pursuant to this Section 8.2, including by providing copies of any office actions or office action responses or other correspondence that such Party provides to or receives from any patent office, including notice of all interferences, reissues, re-examinations, or oppositions, and all patent-related filings, and by providing the other Party the timely opportunity to have reasonable input into the strategic aspects of such Prosecution and Maintenance.

(b) If, during the Agreement Term, Vertex intends to abandon patent applications for any Patent that Vertex is responsible for Prosecuting and Maintaining under Section 8.2.3 (excluding Vertex Background Patents and Vertex Program Patents that Cover technology other than Licensed Agents and Products, but including, for the

avoidance of doubt, [***] Patents) in a particular country, then Vertex will so notify CRISPR of such intention at least [***] before such Patent will become abandoned, and CRISPR will have the right, but not the obligation, to assume responsibility for the Prosecution and Maintenance thereof at its own expense with counsel of its own choice.

(c) If, during the Agreement Term, CRISPR intends to abandon any CRISPR Background Patent (excluding any CRISPR Platform Technology Patents), CRISPR Program Patent, [***] Patent, [***] Joint Program Patent or Other Joint Program Patent Covering a Licensed Agent or Product that CRISPR is responsible for Prosecuting and Maintaining in a particular country, then, if Vertex's right to obtain an Exclusive License to such Patent or have such Patent assigned pursuant to Section 8.1.3, as applicable, has not expired or terminated, CRISPR will notify Vertex of such intention at least [***] before such Patent will become abandoned, and Vertex will have the right, but not the obligation, to assume responsibility for the Prosecution and Maintenance thereof at its own expense with counsel of its own choice.

8.3 Patent Coordinators. Each Party will appoint a patent coordinator reasonably acceptable to the other Party (each, a "**Patent Coordinator**") to serve as such Party's primary liaison with the other Party on matters relating to the Prosecution and Maintenance and enforcement of Licensed Patents and Joint Program Patents. The Patent Coordinators will meet in person or by means of telephone or video conference at least once each Calendar Quarter during the Agreement Term. Each Party may replace its Patent Coordinator at any time by providing notice in writing to the other Party. The initial Patent Coordinators will be:

For Vertex: Kerry Flynn

For CRISPR: Tyler Dylan-Hyde

8.4 Patent Costs. Patent Costs arising after the Effective Date will be borne by the Parties as provided in Schedule K for the relevant period (*i.e.*, before or after Option Exercise) except as otherwise set forth in the Joint Development & Commercialization Agreement.

8.5 Defense of Claims Brought by Third Parties. If a Third Party initiates a Proceeding against either Party claiming a Patent owned by or licensed to such Third Party is infringed by the Research, Development, Manufacture or Commercialization of a Licensed Agent or Product, each Party that is named as a defendant in such Proceeding will have the right to defend itself in such Proceeding. The other Party will reasonably assist the defending Party in defending such Proceeding and cooperate in any such litigation at the request and expense of the defending Party. The defending Party will provide the other Party with prompt written notice of the commencement of any such Proceeding and will keep the other Party apprised of the progress of such Proceeding and will promptly furnish the other Party with a copy of each communication relating to the alleged infringement that is received by such Party. If both Parties are named as defendants in any Proceeding, both Parties may defend such Proceeding and the Parties will reasonably cooperate with respect to such defense.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

8.6 Enforcement of Patents Against Competitive Infringement.

8.6.1 Duty to Notify of Competitive Infringement. If either Party learns of an infringement, unauthorized use, misappropriation or threatened infringement by a Third Party with respect to any Licensed Patents by reason of the making, using, offering to sell, selling or importing of (a) a product containing [***] or (b) the resulting [***] by such [***] (a "**Competitive Infringement**") or any other infringement, unauthorized use, misappropriation or threatened infringement by a Third Party with respect to any CRISPR Platform Technology Patent, such Party will promptly notify the other Party in writing and will provide such other Party with available information regarding such Competitive Infringement or other infringement.

8.6.2 Prior to License Grant. For any Competitive Infringement with respect to a Licensed Agent or Product pertaining to a Collaboration Target that is then subject to an Option, which Competitive Infringement occurs after the Effective Date but before the date Vertex is granted the Exclusive License with respect to such Licensed Agent or Product, CRISPR will have the first right, but not the obligation, to institute, prosecute, and control a Proceeding with respect thereto, by counsel of its own choice. Vertex will have the right to engage counsel of its own choice in connection with such Proceeding at its own expense but shall not be permitted to become party to such Proceeding unless required by Applicable Law. CRISPR will provide Vertex with prompt written notice of the commencement of any such Proceeding, and CRISPR will keep Vertex apprised of the progress of such Proceeding. Notwithstanding anything the contrary contained herein, CRISPR will at all times have the sole right to institute, prosecute, and control any Proceeding under this Section 8.6.2 to the extent involving any CRISPR Platform Technology Patents but will (a) keep Vertex reasonably apprised of the progress of such Proceeding, (b) reasonably consider Vertex's comments with respect to the conduct of such Proceeding and (c) not enter a settlement, consent judgment or other voluntary final disposition of a Proceeding that disclaims, limits the scope of, admits the invalidity or unenforceability of, or grants a license, covenant not to sue or similar immunity that has an adverse effect on Vertex's rights hereunder with respect to, a CRISPR Platform Technology Patent without Vertex's prior written consent, not to be unreasonably withheld.

8.6.3 Following License Grant. For any Competitive Infringement with respect to a particular Licensed Agent or Product occurring after the date Vertex is granted the Exclusive License with respect to such Licensed Agent or Product, Vertex will have the first right, but not the obligation, to institute, prosecute, and control a Proceeding with respect to such Competitive Infringement by counsel of its own choice at its own expense, and CRISPR will have the right, at its own expense, to be represented in that action by counsel of its own choice; *provided* that in such Proceeding, Vertex shall reasonably consider CRISPR's comments with respect to which Patents to seek to enforce against such infringing party, taking into consideration the overall value of the Patents Covering the relevant Licensed Agent or Product to CRISPR and its licensees. If Vertex fails to initiate a Proceeding within a period of [***] after written notice of such Competitive Infringement is first provided by a Party under Section 8.6.1, CRISPR will have the right to initiate and control a Proceeding with respect to such Competitive Infringement by counsel of its own choice, and Vertex will have the right to be represented in any such action by counsel of its own choice at its own expense; *provided*, that if Vertex notifies CRISPR during such [***] period that it is electing in good faith not to institute any Proceeding against such Competitive Infringement for strategic reasons intended to maintain the commercial value of the relevant Patent and any Licensed Agent or Product Covered thereby, CRISPR will not have the right to initiate and control any Proceeding with respect to such Competitive Infringement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Notwithstanding anything to the contrary contained herein, CRISPR will at all times have the sole right to institute, prosecute, and control any Proceeding under this Section 8.6.3 to the extent involving any CRISPR Platform Technology Patents but will (a) keep Vertex reasonably apprised of the progress of such Proceeding, (b) reasonably consider Vertex's comments with respect to the conduct of such Proceeding and (c) not enter a settlement, consent judgment or other voluntary final disposition of a Proceeding that disclaims, limits the scope of, admits the invalidity or unenforceability of, or grants a license, covenant not to sue or similar immunity that has an adverse effect on Vertex's rights hereunder with respect to, a CRISPR Platform Technology Patent without Vertex's prior written consent, not to be unreasonably withheld.

8.6.4 Joinder.

(a) If a Party initiates a Proceeding in accordance with this Section 8.6 or Section 8.7 the other Party agrees to be joined as a party plaintiff where necessary and to give the first Party reasonable assistance and authority to file and prosecute the Proceeding. Subject to Section 8.6.5, the costs and expenses of each Party incurred pursuant to this Section 8.6.4 will be borne by the Party initiating such Proceeding. CRISPR agrees to use Commercially Reasonable efforts to cause Third Parties to be joined as a party plaintiff where necessary.

(b) If one Party initiates a Proceeding in accordance with this Section 8.6, the other Party may join such Proceeding as a party plaintiff where necessary for such other Party to seek lost profits with respect to such infringement.

8.6.5 Share of Recoveries. Any damages or other monetary awards recovered with respect to a Proceeding brought pursuant to this Section 8.6 will be shared as follows:

(a) the amount of such recovery will first [***]; then

(b) any remaining proceeds constituting direct or actual damages for acts of infringement occurring prior to the date Vertex is granted the Exclusive License with respect to the relevant Licensed Agent or Product [***];

(c) any remaining proceeds constituting direct or actual damages for acts of infringement occurring after the date Vertex is granted the Exclusive License with respect to the relevant Licensed Agent or Product [***]; and

(d) any remaining proceeds constituting punitive or treble damages will be allocated between the Parties as follows: [***].

Notwithstanding the foregoing, any Out-of Pocket Costs incurred in connection with a Proceeding with respect to a Shared Product shall be included in the Other-Out-of-Pocket Costs (as defined in Schedule G) and the proceeds of such proceeding shall be deemed Net Sales for purposes of determining the Net Profit or Net Loss (each, as defined in Schedule G).

8.6.6 Settlement. Notwithstanding anything to the contrary under this ARTICLE 8, neither Party may enter a settlement, consent judgment or other voluntary final

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

disposition of a suit under this ARTICLE 8 that disclaims, limits the scope of, admits the invalidity or unenforceability of, or grants a license, covenant not to sue or similar immunity under a Patent Controlled by the other Party or its Affiliates without first obtaining the written consent of the Party that Controls the relevant Patent; *provided* that the foregoing limitation shall not apply to CRISPR's rights

with respect to the CRISPR Platform Technology Patents (subject to the restriction set forth in Sections 8.6.2 and 8.6.3).

8.7 Other Infringement.

8.7.1 Joint Program Patents. With respect to the infringement of a Joint Program Patent that is not a Competitive Infringement, the Parties will cooperate in good faith to bring suit together against such infringing party or the Parties may decide to permit one Party to solely bring suit. Any damages or other monetary awards recovered with respect to a Proceeding brought pursuant to this Section 8.7.1 will be shared as follows: (a) the amount of such recovery [***]; then (b) any remaining proceeds will be allocated as follows: (i) [***]; and (ii) [***].

8.7.2 Patents Solely Owned by CRISPR. CRISPR will retain all rights to pursue an infringement of any Patent solely owned by CRISPR that is not a Competitive Infringement and CRISPR will retain all recoveries with respect thereto.

8.7.3 Patents Solely Owned by Vertex. Vertex will retain all rights to pursue an infringement of any Patent solely owned by Vertex and Vertex will retain all recoveries with respect thereto.

8.8 Patent Listing. Following Vertex's exercise of the Option for a Collaboration Target, Vertex will have the sole right, but not the obligation, to submit to all applicable Regulatory Authorities patent information pertaining to each applicable Product pursuant to 21 U.S.C. § 355(b)(1)(G) (or any amendment or successor statute thereto), any similar statutory or regulatory requirement enacted in the future regarding biologic products, or any similar statutory or regulatory requirement in any non-U.S. country or other regulatory jurisdiction; *provided* that Vertex shall not be permitted to provide any such information with respect to CRISPR Platform Technology Patents without CRISPR's prior written consent.

8.9 CREATE Act. Notwithstanding anything to the contrary in this ARTICLE 8, neither Party will have the right to make an election under the CREATE Act when exercising its rights under this ARTICLE 8 without the prior written consent of the other Party, which will not be unreasonably withheld, conditioned or delayed. With respect to any such permitted election, the Parties will use reasonable efforts to cooperate and coordinate their activities with respect to any submissions, filings or other activities in support thereof. The Parties acknowledge and agree that this Agreement is a "**joint research agreement**" as defined in the CREATE Act.

8.10 Additional Right and Exceptions. Notwithstanding any provision of this ARTICLE 8, CRISPR retains the sole right to Prosecute and Maintain CRISPR Platform Technology Patents and to control any enforcement of CRISPR Platform Technology Patents, subject to the restrictions set forth in Sections 8.6.2 and 8.6.3.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

8.11 Patent Term Extension. The Parties will cooperate with each other in obtaining patent term restoration in any country in the Territory under any statute or regulation equivalent or similar to 35 U.S.C. § 156, where applicable to a Product. After the date Vertex is granted the Exclusive License with respect to a Product, [***] Vertex Background Patents, [***] Patents, Vertex Program Patents, [***] Joint Program Patents, Joint Program Patents and [***] Joint Program Patents [***]. CRISPR will abide by Vertex's determination and cooperate, as reasonably requested by Vertex, in connection with the foregoing (including by providing appropriate information and executing appropriate documents).

8.12 Recording. If Vertex deems it necessary or desirable to register or record this Agreement or evidence of this Agreement with any patent office or other appropriate Governmental Authority in one or more jurisdictions in the Territory, CRISPR will reasonably cooperate to execute and deliver to Vertex any documents accurately reflecting or evidencing this Agreement that are necessary or desirable, in Vertex's reasonable judgment, to complete such registration or recordation. Vertex will reimburse CRISPR for all reasonable Out-of-Pocket Costs, including attorneys' fees, incurred by CRISPR in complying with the provisions of this Section 8.12.

ARTICLE 9
REPRESENTATIONS AND WARRANTIES

9.1 Representations and Warranties of Vertex. Vertex hereby represents and warrants to CRISPR, as of the Effective Date, that:

9.1.1 each of Vertex Parent and Vertex UK are duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof;

9.1.2 each of Vertex Parent and Vertex UK (a) has the requisite power and authority and the legal right to enter into this Agreement and to perform its obligations hereunder and (b) has taken all requisite action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;

9.1.3 each of Vertex Parent and Vertex UK has the requisite resources and expertise to perform its obligations hereunder;

9.1.4 this Agreement has been duly executed and delivered on behalf of each of Vertex Parent and Vertex UK, and constitutes a legal, valid and binding obligation, enforceable against each of Vertex Parent and Vertex UK in accordance with the terms hereof;

9.1.5 the execution, delivery and performance of this Agreement by each of Vertex Parent and Vertex UK will not constitute a default under or conflict with any agreement, instrument or understanding, oral or written, to which either entity is a party or by which either entity is bound, or violate any law or regulation of any court, governmental body or administrative or other agency having jurisdiction over Vertex Parent or Vertex UK; and

9.1.6 each of Vertex Parent and Vertex UK has obtained all necessary consents, approvals and authorizations of all Governmental Authorities and other Persons or entities required to be obtained by it in connection with the execution and delivery of this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

9.2 Representations and Warranties of CRISPR. Each of the CRISPR Entities, jointly and severally, hereby represents and warrants to Vertex, as of the Effective Date, that, except as otherwise set forth on Schedule L:

9.2.1 Each of CRISPR AG, CRISPR Inc., CRISPR UK and Tracr are duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof;

9.2.2 Each of CRISPR AG, CRISPR Inc., CRISPR UK and Tracr (a) has the requisite power and authority and the legal right to enter into this Agreement and to perform its obligations hereunder and (b) has taken all requisite action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;

9.2.3 [***], each of CRISPR AG, CRISPR Inc., CRISPR UK and Tracr has the requisite resources and expertise to perform its obligations hereunder;

9.2.4 this Agreement has been duly executed and delivered on behalf of CRISPR, and constitutes a legal, valid and binding obligation, enforceable against it in accordance with the terms hereof;

9.2.5 the execution, delivery and performance of this Agreement by CRISPR will not constitute a default under or conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it is bound, or violate any law or regulation of any court, governmental body or administrative or other agency having jurisdiction over it;

9.2.6 CRISPR has obtained all necessary consents, approvals and authorizations of all Governmental Authorities and other Persons or entities required to be obtained by CRISPR in connection with the execution and delivery of this Agreement;

9.2.7 the Licensed Technology constitutes all of the Patents and Know-How Controlled by CRISPR that are necessary to Research, Develop, Manufacture or Commercialize Licensed Agents and Products contemplated under the Collaboration Programs in the Field;

9.2.8 CRISPR is the sole and exclusive owner or exclusive licensee of the [***], all of which are free and clear of any liens, charges and encumbrances, and, as of the Effective Date, neither any license granted by CRISPR to any Third Party, nor any license granted by any Third Party to CRISPR conflicts with the license grants to Vertex hereunder (or the Exclusive License to be granted to Vertex upon Option Exercise) and CRISPR is entitled to grant all rights and licenses (or sublicenses, as the case may be) under such Patents it purports to grant to Vertex under this Agreement and the Exclusive Licenses to be granted to Vertex upon Option Exercise;

9.2.9 Schedule L sets forth a true, correct and complete list of all CRISPR Platform Technology Patents and CRISPR Background Patents as of the Effective Date and

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

indicates (a) whether each such Patent is a [***] or a [***] and (b) whether such Patent is owned by CRISPR or licensed by CRISPR from a Third Party and if so, identifies the licensor or sublicensor from which the Patent is licensed;

9.2.10 CRISPR has independently developed all Licensed Technology or otherwise has a valid right to use, and to permit Vertex, Vertex's Affiliates and Vertex's Sublicensees to use, the Licensed Technology for all permitted purposes under this Agreement;

9.2.11 the CRISPR Background Know-How is free and clear of liens, charges or encumbrances other than licenses granted to Third Parties that are not inconsistent with the rights and licenses granted to Vertex hereunder;

9.2.12 the CRISPR Platform Technology Patents and CRISPR Background Patents, are, or, upon issuance, will be, valid and enforceable patents and no Third Party [***], (a) is infringing any such Patents or (b) has challenged the extent, validity or enforceability of such Patents (including by way of example through the institution or written threat of institution of interference, nullity or similar invalidity proceedings before the United States Patent and Trademark Office or any analogous foreign Governmental Authority);

9.2.13 it has complied with all Applicable Laws, including any disclosure requirements of the United States Patent and Trademark Office or any analogous foreign Governmental Authority, in connection with the Prosecution and Maintenance of the CRISPR Platform Technology Patents and CRISPR Background Patents and has timely paid all filing and renewal fees payable with respect to any such Patents for which it controls Prosecution and Maintenance;

9.2.14 it has obtained assignments from the inventors of all inventorship rights relating to the [***] and [***] that it owns, and all such assignments of inventorship rights relating to such Patents are valid and enforceable;

9.2.15 except for the CRISPR In-License Agreements, there is no agreement between CRISPR (or any of its Affiliates) and any Third Party pursuant to which CRISPR has acquired Control of any of the Licensed Technology, and no Third Party has any right, title or interest in or to, or any license under, any of the Licensed Technology. All CRISPR In-License Agreements are in full force and effect and have not been modified or amended (except for amendments provided to Vertex prior to the Effective Date). Neither CRISPR nor, [***], the Third Party licensor in a CRISPR In-License Agreement is in default with respect to a material obligation under such CRISPR In-License Agreement, and neither such party has claimed or has grounds upon which to claim that the other party is in default with respect to a material obligation under, any CRISPR In-License Agreement;

9.2.16 CRISPR and its Affiliates have taken commercially reasonable measures consistent with industry practices to protect the secrecy, confidentiality and value of all CRISPR Background Know-How that constitutes trade secrets under Applicable Law (including requiring all employees, consultants and independent contractors to execute binding and enforceable agreements requiring all such employees, consultants and independent contractors to maintain the confidentiality of such CRISPR Background Know-How) and, [***], such CRISPR

Background Know-How has not been used, disclosed to or discovered by any Third Party except pursuant to such confidentiality agreements and there has not been a breach by any party to such confidentiality agreements;

9.2.17 no Licensed Technology is subject to any funding agreement with any government or governmental agency;

9.2.18 [***], the Research, Development, Manufacture, use, sale, offer for sale, supply or importation by CRISPR or Vertex (or their respective Affiliates or Sublicensees) of a Licensed Agent or Product does not and will not infringe any issued patent of any Third Party or, if and when issued, any claim within any patent application of any Third Party;

9.2.19 there are no judgments or settlements against or owed by CRISPR [***], [***], pending or threatened claims or litigation, in either case relating to the Licensed Technology;

9.2.20 there is no action, claim, demand, suit, proceeding, arbitration, grievance, citation, summons, subpoena, inquiry or investigation of any nature, civil, criminal, regulatory or otherwise, in law or in equity, pending [***], [***], threatened against CRISPR, any of its Affiliates or any Third Party, in each case in connection with the Licensed Technology or relating to the transactions contemplated by this Agreement; and

9.2.21 CRISPR has not employed (and, [***], has not used a contractor or consultant that has employed) any Person debarred by the FDA (or subject to a similar sanction of EMA or foreign equivalent), or any Person that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMA or foreign equivalent), in any capacity in connection with this Agreement.

9.3 CRISPR Covenants. Each of the CRISPR Entities, jointly and severally, hereby covenants to Vertex that, except as expressly permitted under this Agreement:

9.3.1 CRISPR will maintain and not breach any CRISPR In-License Agreements [***] that provide a grant of rights from such Third Party to CRISPR that are Controlled by CRISPR and are licensed or may become subject to a license from CRISPR to Vertex for a Licensed Agent or Product under this Agreement;

9.3.2 CRISPR will promptly notify Vertex of any material breach by one or more CRISPR Entities or a Third Party of any CRISPR In-License Agreements or [***] that provides a grant of rights from such Third Party to one or more CRISPR Entities and are licensed or may become subject to a license from CRISPR to Vertex to conduct Vertex Activities or for a Licensed Agent or Product under this Agreement, and in the event of a breach by [***], will [***]. CRISPR will [***] as soon as possible, but in no event later than the date on which [***];

9.3.3 it will not amend, modify or terminate any CRISPR In-License Agreement or [***] in a manner that would have an adverse effect on Vertex's rights hereunder without first obtaining Vertex's written consent, which consent may be withheld in Vertex's sole discretion;

9.3.4 it will not enter into any new agreement or other obligation with any Third Party, or amend an existing agreement with a Third Party, in each case that adversely restricts, limits or encumbers the rights granted to Vertex under this Agreement or the additional rights or licenses Vertex would acquire upon Option Exercise;

9.3.5 it will not, and will cause its Affiliates not to (a) license, sell, assign or otherwise transfer to any Person any Licensed Technology (or agree to do any of the foregoing), except as provided in Section 8.1.3 or except as will not adversely restrict, limit or encumber the rights granted to Vertex under this Agreement or the additional rights or licenses Vertex would acquire upon Option Exercise, or (b) incur or permit to exist, with respect to any Licensed Technology, any lien, encumbrance, charge, security interest, mortgage, liability, grant of license to Third Parties or other restriction (including in connection with any indebtedness);

9.3.6 it will use Commercially Reasonable Efforts to obtain and maintain the requisite resources and expertise to perform its obligations hereunder;

9.3.7 all employees and Subcontractors of CRISPR performing Research or Development activities hereunder on behalf of CRISPR will be obligated to assign to CRISPR all right, title and interest in and to any inventions developed by them, whether or not patentable, or, solely with respect to Subcontractors, grant exclusive license rights to CRISPR with a right to grant sublicenses through multiple tiers;

9.3.8 it will not engage, in any capacity in connection with this Agreement any Person who either has been debarred by the FDA, is the subject of a conviction described in Section 306 of the FD&C Act or is subject to any such similar sanction;

9.3.9 CRISPR will inform Vertex in writing promptly if it or any Person engaged by CRISPR or any of its Affiliates who is performing services under this Agreement or any ancillary agreements is debarred or is the subject of a conviction described in Section 306 of the FD&C Act, or if any action, suit, claim, investigation or legal or administrative proceeding is pending or, to CRISPR's Knowledge, is threatened, relating to the debarment or conviction of CRISPR, any of its Affiliates or any such Person performing services hereunder or thereunder;

9.3.10 Within [***] after the Effective Date, [***] will take all actions necessary (including, without limitation, [***] to ensure [***], effective [***], which actions may include, without limitation, [***] and executing all documents necessary in connection therewith.

9.3.11 CRISPR shall use Commercially Reasonable Efforts (A) to, within [***] of the Effective Date, [***] directly or indirectly [***] that [***], that have [***] and that [***] and other intellectual property rights or (B) shall otherwise work together [***]. To the extent [***] execute such documents as are necessary to [***] and (ii) CRISPR shall [***] and the [***] shall be [***].

9.4 Vertex Covenants. Vertex hereby covenants to CRISPR that, except as expressly permitted under this Agreement:

9.4.1 it will use Commercially Reasonable Efforts to obtain and maintain the requisite resources and expertise to perform its obligations hereunder;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

9.4.2 Vertex will not engage, in any capacity in connection with this Agreement any Person who either has been debarred by the FDA, is the subject of a conviction described in Section 306 of the FD&C Act or is subject to any such similar sanction; and

9.4.3 Vertex will inform CRISPR in writing promptly if it or any Person engaged by Vertex or any of its Affiliates who is performing services under this Agreement or any ancillary agreements is debarred or is the subject of a conviction described in Section 306 of the FD&C Act, or if any action, suit, claim, investigation or legal or administrative proceeding is pending or, [***], is threatened, relating to the debarment or conviction of CRISPR, any of its Affiliates or any such Person performing services hereunder or thereunder.

9.5 Disclaimer. Except as otherwise expressly set forth in this Agreement, neither Party nor its Affiliates makes any representation or extends any warranty of any kind, either express or implied, including any warranty of merchantability or fitness for a particular purpose. Vertex and CRISPR understand that each Product is the subject of ongoing Research and Development and that neither Party can assure the safety, usefulness or commercial or technical viability of any Product.

ARTICLE 10
INDEMNIFICATION; INSURANCE

10.1 Indemnification by Vertex. Vertex will indemnify, defend and hold harmless CRISPR, each of its Affiliates, and each of its and its Affiliates' employees, officers, directors and agents (each, an "**CRISPR Indemnified Party**") from and against any and all liability, loss, damage, expense (including reasonable attorneys' fees and expenses) and cost (collectively, a "**Liability**") that the CRISPR Indemnified Party may be required to pay to one or more Third Parties to the extent resulting from or arising out of:

10.1.1 any claims of any nature arising out of the Research, Development, Manufacture, Commercialization or use of any Licensed Agent or Product by, on behalf of, or under the authority of, Vertex (other than by any CRISPR Indemnified Party), other than (a) claims by Third Parties relating to misappropriation of trade secrets or other intellectual property rights arising out of the exercise of rights under the Licensed Know-How, or (b) claims for which CRISPR is required to indemnify Vertex pursuant to Section 10.2; or

10.1.2 the material breach by Vertex of any of its representations, warranties or covenants set forth in this Agreement, except to the extent caused by the negligence or intentional acts of CRISPR or any CRISPR Indemnified Party.

10.2 Indemnification by CRISPR. Each CRISPR Entity will jointly and severally indemnify, defend and hold harmless Vertex, its Affiliates, Sublicensees, distributors and each of its and their respective employees, officers, directors and agents (each, a "**Vertex Indemnified Party**") from and against any and all Liabilities that the Vertex Indemnified Party may be required to pay to one or more Third Parties to the extent resulting from or arising out of:

10.2.1 the material breach by CRISPR (or any CRISPR Entity(ies)) of any of its representations, warranties or covenants set forth in this Agreement, except to the extent caused by the negligence or intentional acts of Vertex or any Vertex Indemnified Party; or

10.2.2 any claims of any nature arising out of the Research activities performed by CRISPR (or any CRISPR Entity(ies)) with respect to any Licensed Agent or Product prior to the Effective Date or during the Research Term, other than claims for which Vertex is required to indemnify CRISPR pursuant to Section 10.1.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

10.3 Procedure. Each Party will notify the other Party in writing if it becomes aware of a claim for which indemnification may be sought hereunder. In case any proceeding (including any governmental investigation) will be instituted involving any Party in respect of which indemnity may be sought pursuant to this ARTICLE 10, such Party (the "**Indemnified Party**") will give prompt written notice of the indemnity claim to the other Party (the "**Indemnifying Party**") and provide a copy to the Indemnifying Party of any complaint, summons or other written or verbal notice that the Indemnified Party receives in connection with any such claim. An Indemnified Party's failure to deliver written notice will relieve the Indemnifying Party of liability to the Indemnified Party under this ARTICLE 10 only to the extent such delay is prejudicial to the Indemnifying Party's ability to defend such claim. Provided that the Indemnifying Party is not contesting the indemnity obligation, the Indemnified Party will permit the Indemnifying Party to control any litigation relating to such claim and the disposition of such claim by negotiated settlement or otherwise and any failure to contest prior to assuming control will be deemed to be an admission of the obligation to indemnify. The Indemnifying Party will act reasonably and in good faith with respect to all matters relating to such claim and will not settle or otherwise resolve such claim without the Indemnified Party's prior written consent which will not be withheld, delayed or conditioned unreasonably other than settlements only involving the payment of monetary awards for which the Indemnifying Party will be fully-responsible. The Indemnified Party will cooperate with the Indemnifying Party in such Party's defense of any claim for which indemnity is sought under this Agreement, at the Indemnifying Party's sole cost and expense.

10.4 Insurance. Each Party will maintain, at its cost, reasonable insurance against liability and other risks associated with its activities contemplated by this Agreement and will furnish to the other Party evidence of such insurance upon request. Notwithstanding the foregoing, Vertex may self-insure to the extent that it self-insures for its other activities.

10.5 Limitation of Consequential Damages. Except for (a) claims of a Third Party that are subject to indemnification under this ARTICLE 10, (b) claims arising out of a Party's willful misconduct, or (c) a Party's breach of Section 2.13 or ARTICLE 12, neither Party nor any of its Affiliates will be liable to the other Party or its Affiliates for any incidental, consequential, special, punitive or other indirect damages or lost or imputed profits or royalties, lost data or cost of procurement of substitute goods or services, whether liability is asserted in contract, tort (including negligence and strict product liability), indemnity or contribution, and irrespective of whether that Party or any representative of that Party has been advised of, or otherwise might have anticipated the possibility of, any such loss or damage.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 11
TERM; TERMINATION

11.1 Agreement Term; Expiration. This Agreement is effective as of the Effective Date and, unless earlier terminated pursuant to the other provisions of this ARTICLE 11, will continue in full force and effect until this Agreement expires as follows:

11.1.1 on a country-by-country and Product-by-Product basis, on the date of expiration of all payment obligations under this Agreement with respect to such Product in such country;

11.1.2 in its entirety upon the expiration of all payment obligations under this Agreement with respect to all Products in all countries pursuant to Section 11.1.1; and

11.1.3 in its entirety upon expiration of all Options if Vertex has not exercised any Option as provided in Section 4.1.1.

11.2 Termination of the Agreement.

11.2.1 Vertex's Termination for Convenience. Vertex will be entitled to terminate this Agreement as a whole, or terminate this Agreement in part with respect to a particular Collaboration Program, for convenience by providing CRISPR 90 days' written notice of such termination; *provided*, *however*, that if any termination under this Section 11.2.1 applies to a Product for which Vertex has received Marketing Approval, Vertex will provide CRISPR no less than 270 days' notice of such termination.

11.2.2 Termination Due to Failure to Obtain HSR Clearance. If the Parties make an HSR Filing with respect to a Collaboration Target under Section 4.1.2 and the HSR Clearance Date has not occurred on or prior to [***] after the effective date of the latest HSR Filing made by the Parties with respect to a Collaboration Target, this Agreement will terminate solely with respect to the applicable Collaboration Program at the election of either Party immediately upon notice to the other Party, if (a) the FTC or the DOJ has instituted (or threatened to institute) any action, suit or proceeding including seeking, threatening to seek or obtaining a preliminary injunction under the HSR Act against Vertex and CRISPR to enjoin or otherwise prohibit the transactions contemplated by this Agreement related to such proposed Collaboration Program, or (b) the Parties have not resolved any and all objections of the FTC and DOJ as contemplated by Section 4.1.2(b). Notwithstanding the foregoing, this Section 11.2.2 will not apply if an HSR Filing is not required for Vertex to receive the Exclusive License with respect to a Collaboration Target. If this Agreement is terminated pursuant to this Section 11.2.2 with respect to a particular Collaboration Target, such Collaboration Target will not count towards the Option Cap. If, following termination of this Agreement with respect to a Collaboration Target under this Section 11.2.2, CRISPR or any of its Affiliates or sublicensees Commercializes a Product for the relevant Collaboration Target, [***] of (i) [***] and (ii) [***].

11.2.3 [***]. The terms of Sections 1.117, 7.5.2, 7.5.5, 7.7, 7.8, 7.9 and 7.10 will apply with respect [***], *mutatis mutandis*.

11.2.4 Termination for Material Breach.

(a) Vertex's Right to Terminate. If CRISPR (or any CRISPR Entity(ies)) is in material breach of this Agreement, then Vertex may deliver notice of

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

such material breach to CRISPR. If the breach is curable, CRISPR will have [***] from the receipt of such notice to cure such breach. If either CRISPR fails to cure such breach within such [***] period or the breach is not subject to cure (a "**CRISPR Breach Event**"), Vertex may either (i) terminate this Agreement (A) if such breach relates solely relates to a particular Collaboration Program, with respect to the Collaboration Program affected by such breach (a "**CRISPR Program Breach**") or (B) if such breach relates to multiple Collaboration Programs or this Agreement as a whole (a "**CRISPR Agreement Breach**"), in its entirety, by providing written notice to CRISPR or (ii) elect to exercise the alternate remedy provisions set forth in Section 11.3 (in lieu of termination).

(b) CRISPR's Right to Terminate.

(i) If Vertex is in material breach of this Agreement, then CRISPR may deliver notice of such material breach to Vertex. If the breach is curable, Vertex will have [***] following receipt of such notice to cure such breach (except to the extent such breach involves the failure to make a payment when due, which breach must be cured within [***] following receipt of such notice). If Vertex fails to cure such breach within the [***] or [***] period, as applicable, or the breach is not subject to cure, CRISPR in its sole discretion may terminate this Agreement (i) if such breach relates solely relates to a particular Collaboration Program, with respect to the Collaboration Program affected by such breach or (ii) if such breach relates to multiple Collaboration Programs or this Agreement as a whole, in its entirety, by providing written notice to Vertex.

(ii) If Vertex (A) commences or actively and voluntarily participates in any action or proceeding (including any patent opposition or re-examination proceeding), or otherwise asserts any claim, challenging or denying the validity or enforceability of any claim of any Patent that is licensed to Vertex under this Agreement or (B) actively and voluntarily assists any other Person in bringing or prosecuting any action or proceeding (including any patent opposition or re-examination proceeding) challenging or denying the validity or enforceability of any claim of any Patent that is licensed to Vertex under this Agreement (each of (A) and (B), a "**Patent Challenge**"), then, to the extent permitted by Applicable Law, CRISPR shall have the right, in its sole discretion, to give notice to Vertex that CRISPR may terminate the license(s) granted under such Patent to Vertex [***] following such notice, and, unless Vertex withdraws or causes to be withdrawn all such challenge(s) (or in the case of *ex-parte* proceedings, multi-party proceedings, or other Patent Challenges that Vertex does not have the power to unilaterally withdraw or cause to be withdrawn), Vertex ceases assisting any other party to such Patent Challenge and, to the extent Vertex is a party to such Patent Challenge, it withdraws from such Patent Challenge within such [***] period, CRISPR shall have the right to terminate this Agreement by providing written notice thereof to Vertex. The foregoing right to terminate shall not apply with respect to any Patent Challenge where the Patent Challenge is made in defense of an assertion of the relevant Patent that is first brought by CRISPR against Vertex. For the avoidance of doubt, any participation by Vertex or its employees in any claim, challenge or proceeding in response to a subpoena or as required under a pre-existing agreement between Vertex's employee(s) or consultant(s) and their prior employer(s) shall not constitute active and voluntary participation or assistance and shall not give rise to CRISPR's right to terminate any license hereunder.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11.2.5 Disputes Regarding Material Breach. Notwithstanding the foregoing, if the Breaching Party in Section 11.2.3 disputes in good faith the existence, materiality, or failure to cure of any such breach that is not a payment breach, and provides notice to the Non-Breaching Party of such dispute within the relevant cure period, the Non-Breaching Party will not have the right to terminate this Agreement in accordance with Section 11.2.3, or the right to exercise the alternative remedy provisions of 11.3, as applicable, unless and until the relevant dispute has been resolved. It is understood and acknowledged that during the pendency of such dispute, all the terms and conditions of this Agreement will remain in effect and the Parties will continue to perform all of their respective obligations hereunder.

11.2.6 Termination for Insolvency. If CRISPR (or any CRISPR Entity(ies)) makes an assignment for the benefit of creditors, appoints or suffers appointment of a receiver or trustee over all or substantially all of its property, files a petition under any bankruptcy or insolvency act or has any such petition filed against it that is not discharged within [***] of the filing thereof (each, an "**Insolvency Event**"), then Vertex may terminate this Agreement in its entirety effective immediately upon written notice to CRISPR. If Vertex terminates this Agreement pursuant to this Section 11.2.5:

(a) All rights and licenses now or hereafter granted by CRISPR to Vertex under or pursuant to this Agreement, including, for the avoidance of doubt, any Exclusive Licenses are, for all purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property" as defined in the U.S. Bankruptcy Code. Upon the occurrence of any Insolvency Event with respect to CRISPR (or any CRISPR Entity(ies)), CRISPR agrees that Vertex, as licensee of such rights under this Agreement, will retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code. CRISPR will, during the term of this Agreement, create and maintain current copies or, if not amenable to copying, detailed descriptions or other appropriate embodiments, to the extent feasible, of all intellectual property licensed under this Agreement. Each Party acknowledges and agrees that "embodiments" of intellectual property within the meaning of Section 365(n) include laboratory notebooks, cell lines, product samples and inventory, research studies and data, all Regulatory Approvals (and all applications for Regulatory Approval) and rights of reference therein, the Licensed Technology and all information related to the Licensed Technology. If (x) a case under the U.S. Bankruptcy Code is commenced by or against CRISPR (or any CRISPR Entity(ies)), (y) this Agreement is rejected as provided in the U.S. Bankruptcy Code, and (z) Vertex elects to retain its rights hereunder as provided in Section 365(n) of the U.S. Bankruptcy Code, CRISPR (in any capacity, including debtor-in-possession) and its successors and assigns (including a trustee) will:

(i) provide to Vertex all such intellectual property (including all embodiments thereof) held by CRISPR and such successors and assigns, or otherwise available to them, immediately upon Vertex's written request. Whenever CRISPR or any of its successors or assigns provides to Vertex any of the intellectual property licensed hereunder (or any embodiment thereof) pursuant to this Section 11.2.5(a)(i), Vertex will

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

have the right to perform CRISPR's obligations hereunder with respect to such intellectual property, but neither such provision nor such performance by Vertex will release CRISPR from liability resulting from rejection of the license or the failure to perform such obligations; and

(ii) not interfere with Vertex's rights under this Agreement, or any agreement supplemental hereto, to such intellectual property (including such embodiments), including any right to obtain such intellectual property (or such embodiments) from another entity, to the extent provided in Section 365(n) of the U.S. Bankruptcy Code.

(b) All rights, powers and remedies of Vertex provided herein are in addition to and not in substitution for any and all other rights, powers and remedies now or hereafter existing at law or in equity (including the U.S. Bankruptcy Code) in the event of the commencement of a case under the U.S. Bankruptcy Code with respect to CRISPR. The Parties agree that they intend the following rights to extend to the maximum extent permitted by Applicable Law, and to be enforceable under U.S. Bankruptcy Code Section 365(n):

(i) the right of access to any intellectual property rights (including all embodiments thereof) of CRISPR, or any Third Party with whom CRISPR contracts to perform an obligation of CRISPR under this Agreement, and, in the case of any such Third Party, which is necessary for the Manufacture, use, sale, import or export of Licensed Agents; and

(ii) the right to contract directly with any Third Party to complete the contracted work.

11.3 Alternative Remedies to Termination.

11.3.1 Prior to Option Exercise. If a CRISPR Breach Event occurs prior to Vertex exercising its Option with respect to a particular Collaboration Target, Vertex may elect the alternative remedy provisions of this Section 11.3.1 with respect to each Collaboration Target for which it has not yet exercised the Option and that is subject to such CRISPR Breach Event (in the case of a CRISPR Program Breach), or all such Collaboration Targets (in the case of a CRISPR Agreement Breach), by providing written notice of such election to CRISPR, in which case, this Agreement will continue in full force and effect with the following modifications with respect to each Collaboration Target for which Vertex elects to exercise its rights under this Section 11.3.1. If Vertex exercises its rights under this Section 11.3.1, such exercise shall be Vertex's sole remedy in connection with such CRISPR Breach Event; Vertex shall have no other rights hereunder or at law or in equity with respect to the relevant CRISPR Breach Event; and CRISPR shall have no obligation to cure such CRISPR Breach Event.

(a) if CRISPR has not completed the activities for which it is responsible under the applicable Research Plan, [***], in which case, [***], If [***] for such activities, CRISPR will [***] and Vertex will [***] as provided herein;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) Vertex's obligations under [***] will not apply with respect to the applicable Collaboration Target;

(c) CRISPR will provide to Vertex [***] and [***] in [***] under the relevant [***] in an efficient and orderly manner;

(d) in the event that Vertex subsequently elects to obtain the Exclusive License with respect to any such Collaboration Target, such election shall be regarded as an Option pursuant to Section 4.1.1 (subject to the Option Cap), *provided* that [***].

11.3.2 After Option Exercise. If a CRISPR Breach Event occurs after Vertex exercises its Option with respect to a particular Collaboration Target, Vertex may elect the alternative remedy provisions of this Section 11.3.2 with respect to any Collaboration Target for which it has exercised the Option and that is subject to such CRISPR Breach Event (in the case of a CRISPR Program Breach), or all such Collaboration Targets (in the case of a CRISPR Agreement Breach), by providing written notice of such election to CRISPR, in which case, this Agreement will continue in full force and effect with the following modifications with respect to each Collaboration Target for which Vertex elects to exercise its rights under this Section 11.3.2, each at Vertex's election. If Vertex exercises its rights under this Section 11.3.2, such exercise shall be Vertex's sole remedy in connection with such CRISPR Breach Event; Vertex shall have no other rights hereunder or at law or in equity with respect to the relevant CRISPR Breach Event; and CRISPR shall have no obligation to cure such CRISPR Breach Event.

(a) CRISPR's right to [***];

(b) Vertex may [***] required or permitted [***] established pursuant to this Agreement in connection with the [***]; *provided*, *however*, Vertex will not have the right to: (i) [***] of this Agreement; (ii) [***] of the Parties, (iii) [***] under this Agreement; (iv) exercise its [***] would constitute a violation of an Applicable Law; (v) make a determination [***] under this Agreement or (vi) require [***], whether internal or external, including capital expenditures for which [***] as provided herein; and

(c) to the extent CRISPR is then conducting Additional Research, Vertex may, but will not be obligated to, assume responsibility for such Additional Research, in which case, Vertex's obligation to fund such activities as provided in Section 7.4 will terminate. If Vertex does not elect to assume responsibility for such activities, CRISPR will continue to perform such activities and Vertex will continue to reimburse CRISPR for Research Costs arising out of such activities as provided herein.

11.3.3 [***]. If (a) CRISPR (or any CRISPR Entity(ies)) commits a breach or series of breaches of this Agreement, (b) Vertex incurs at least [***] in aggregate losses, damages and expenses as a result of such breach or breaches, (c) Vertex does not terminate this Agreement in its entirety or with respect to a Collaboration Target or Product due to such breach or breaches, and (d) Vertex has not exercised its rights under Section 11.3.1 or 11.3.2, as applicable, with respect to such breach or breaches, then, in addition to any other remedies Vertex may have under this Agreement, at law or in equity or otherwise, [***]. [***] Vertex

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

will provide CRISPR with a written certificate, signed by Vertex's Chief Financial Officer, certifying [***]. Notwithstanding the foregoing, if CRISPR notifies Vertex in writing that it disputes Vertex's assertion that CRISPR (or any CRISPR Entity (ies)) is in breach of this Agreement [***], then (a) Vertex will initiate the dispute resolution process set forth in Section 11.3.4, and (b) pending the Parties' agreement regarding the appropriate [***] or a determination by the mediator [***] in accordance with Section 11.3.4(b), Vertex will [***]. If the Parties cannot settle their dispute by mutual agreement, then, in accordance with Section 11.3.4 (b), the mediator will determine (1) [***], (2) [***] and (3) if [***], in which case Vertex [***].

11.3.4 [***] Dispute Resolution.

(a) Escalation. If Vertex has exercised its [***] rights under Section 11.3.3, and there is a dispute regarding whether CRISPR is in breach of this Agreement [***], either Party may make a written request that [***] be referred for resolution to Executive Officers of each Party (or their designees). Within [***] after such request, the Executive Officers of each Party (or their designees) will meet in person at a mutually acceptable time and location or by means of telephone or video conference to negotiate a settlement of a [***]. Each Party may elect to have such Party's JRC representatives participate in such meeting, if desired, *provided* that it provides the other Party with reasonable advance notice of such intent so as to enable the other Party to have its JRC representatives also participate in such meeting, if desired. In the event that the Executive Officers of each Party (or their designees) fail to resolve the [***] within such [***] the [***] will be referred to mediation under Section 11.3.4(b).

(b) Mediation. If a [***] cannot be resolved pursuant to Section 11.3.4(a), the Parties agree to try in good faith to resolve any such [***] by non-binding mediation administered by JAMS End Dispute in accordance with its commercial mediation rules. The mediation will be conducted by a single mediator appointed by agreement of the Parties who will have previous financial experience in the pharmaceutical industry, or failing such agreement by JAMS End Dispute in accordance with its commercial mediation rules. Unless otherwise mutually agreed upon by the Parties, the mediation proceedings will be conducted in Boston, Massachusetts. The Parties agree that [***] the cost of the mediation, including filing and hearing fees, and the cost of the mediator(s). Each Party will bear its own attorneys' fees and associated costs and expenses. If the Parties are unable to resolve a [***] pursuant to such mediation, then at the completion of such mediation the mediator will decide the following issues, which decision will be binding on the Parties pending final resolution of the [***] by a court of competent jurisdiction:

(i) Whether the [***] by Vertex pursuant to Section 11.3.3 exceeds the mediator's objective good faith estimate of [***]; and

(ii) What amount (if any) may Vertex [***] under Section 11.3.3, which [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(c) Mediator Resolution.

(i) If the mediator determines that [***] by Vertex pursuant to Section 11.3.3 [***], the Parties will promptly cause [***] as provided for in Section 7.10. The Parties will promptly cause [***].

(ii) If the mediator determines that Vertex may [***] under Section 11.3.3, Vertex may [***].

(iii) The decisions rendered by mediator with respect to [***] will be binding on the Parties pending resolution of the [***] by the agreement of the Parties or by a court of competent jurisdiction in accordance with this Agreement.

11.4 Consequences of Expiration or Termination of the Agreement.

11.4.1 In General. If this Agreement expires or is terminated by a Party in accordance with this ARTICLE 11 at any time and for any reason, the following terms will apply to any Product in any country that is the subject of such expiration or termination:

(a) The Parties will return (or destroy, as directed by the other Party) all data, files, records and other materials containing or comprising the other Party's Confidential Information, except to the extent such Confidential Information is subject to a license or similar grant of rights that survives such termination or is necessary or useful to conduct activities for a surviving Collaboration Program or Product or country. Notwithstanding the foregoing, the Parties will be permitted to retain one copy of such data, files, records, and other materials for archival and legal compliance purposes.

(b) Termination or expiration of this Agreement for any reason will be without prejudice to any rights or financial compensation that will have accrued to the benefit of a Party prior to such termination or expiration. Such termination or expiration will not relieve a Party from obligations that are expressly indicated to survive the termination or expiration of this Agreement.

(c) The following provisions of this Agreement will survive any expiration or termination of this Agreement: Article 1 (Definitions), Section 5.3 (License Grants to Vertex) (solely in the event of expiration, not termination) Section 5.4 (Licenses to Improvements), Section 5.6 (No Implied Licenses), Article 7 (Financial Provisions), solely to the extent of accrued obligation as contemplated by Section 11.4.1(b), Section 8.1.1 (Ownership; Assignment - CRISPR Technology and Vertex Technology), 8.1.2 (Ownership; Assignment - Agreement Technology), Sections 8.5-8.6 (with respect to proceedings to the extent relating to events occurring prior to the effective date of termination) 8.6.4 (Joinder), Article 10 (Indemnification; Insurance), Section 11.2.5 (Public Announcements; Publications), Section 11.4 (Consequences of Expiration or Termination of the Agreement), Sections 12.1, 12.2, 12.3, 12.4 and 12.6 (Confidentiality) and Article 13 (Miscellaneous)."

11.4.2 Termination Before License Grant. If this Agreement expires or is terminated, in whole or in part with respect to a Collaboration Target, by a Party in accordance with this ARTICLE 11 before Vertex has been granted an Exclusive License for a particular Collaboration Target, then, in addition to the terms set forth in Section 11.4.1, the following terms will apply to each Collaboration Target that is the subject of such expiration or termination:

(a) Vertex's Option under Section 4.1 will expire and CRISPR will be free to Research, Develop, Manufacture and Commercialize the applicable Licensed Agents or Products in the applicable counties on its own or with a Third Party;

(b) except with respect to (i) any termination by Vertex under Section 11.2.3(a) or (ii) any expiration or termination with respect to a Collaboration Target that is associated with [***], effective upon such termination, Vertex hereby grants to CRISPR a non-exclusive, royalty-free, irrevocable, perpetual, worldwide license, which CRISPR may sublicense through multiple tiers, under all Vertex Program Technology Controlled by Vertex or its Affiliates (A) generated under the applicable Collaboration Program or (B) used in such terminated Collaboration Program to Develop, Manufacture and Commercialize Licensed Agents and Products directed to the relevant Collaboration Target; *provided*, that if the grant of such license to CRISPR with respect to any Know-How or Patent included in the Vertex Program Technology or CRISPR's exercise of such license would [***] or would require compliance with any provision of any license between Vertex and a Third Party, Vertex will so notify CRISPR and such Know-How or Patent will only be included in the foregoing license if, following receipt of such notice, [***] and comply with any such provision; and

(c) except as explicitly set forth in Section 11.4.1, Vertex will have no further rights and CRISPR will have no further obligations with respect to each terminated Collaboration Target.

11.4.3 Termination After License Grant. If this Agreement is terminated, in whole or in part with respect to a Product or Collaboration Target, by a Party in accordance with this ARTICLE 11 (but not if this Agreement expires in accordance with its terms) after Vertex has been granted an Exclusive License for a particular Collaboration Target, then, in addition to the terms set forth in Section 11.4.1, the following terms will apply to any Product or Collaboration Target that is the subject of such termination:

(a) except as set forth in Section 11.4.3(f), the applicable licenses granted by CRISPR to Vertex under this Agreement will terminate and Vertex and its Affiliates will cease all Research, Development, Manufacture and Commercialization activities with respect to the applicable Products;

(b) Vertex will assign back to the CRISPR Entity designated by CRISPR AG any Patents assigned to Vertex under Section 8.1.3 that relate to the applicable Collaboration Target to the extent that such Patents do not also relate to a Collaboration Target for which Vertex is maintaining the Exclusive License;

(c) except with respect to (i) any termination by Vertex under Section 11.2.3(a) or (ii) any expiration or termination with respect to a Collaboration Target that is associated with [***], Vertex shall, as promptly as practicable, transfer to the CRISPR Entity designated by CRISPR AG or such CRISPR Entity's designee

possession and ownership of all Regulatory Approvals solely relating to the Development, Manufacture or Commercialization of any terminated Product or Collaboration Target within such terminated Collaboration Program;

(d) except as explicitly set forth in Section 11.4.1, Vertex will have no further rights and CRISPR will have no further obligations with respect to the terminated Products and Collaboration Target(s);

(e) except with respect to (i) any termination by Vertex under Section 11.2.3(a) or (ii) any termination with respect to a Collaboration Target that is associated with [***], and subject to Section 11.4.3(f), effective upon such termination, Vertex hereby grants to CRISPR a non-exclusive, royalty-free, irrevocable, perpetual, worldwide license, which CRISPR may sublicense through multiple tiers, under all Vertex Program Technology Controlled by Vertex or its Affiliates and (A) generated under the applicable Collaboration Program or (B) used in such terminated Collaboration Program to Develop, Manufacture and Commercialize Licensed Agents and Products directed to the relevant Collaboration Target; *provided*, that if the grant of such license to CRISPR with respect to any Know-How or Patent included in the Vertex Program Technology or CRISPR's exercise of such license would [***] or would require compliance with any provision of any license between Vertex and a Third Party, Vertex will so notify CRISPR and such Know-How or Patent will only be included in the foregoing license if, following receipt of such notice, [***] and comply with any such provision; and

(f) any permitted Sublicense of Vertex will, at the Sublicensee's option, survive such termination; *provided* that the Sublicensee is not in material breach of any of its obligations under such Sublicense. In order to effect this provision, at the request of the Sublicensee, CRISPR will enter into a direct license with the Sublicensee on substantially the same terms as this Agreement (taking into account the scope of the licensee granted under such Sublicense); *provided* that CRISPR will not be required to undertake obligations in addition to those required by this Agreement, and that CRISPR's rights under such direct license will be consistent with its rights under this Agreement, taking into account the scope of the license granted under such direct license. Any such Sublicense would continue to include rights to any Patent assigned to CRISPR pursuant to Section 11.4.3(b) to the extent such rights were included in such Sublicense prior to termination and the license to CRISPR set forth in Section 11.4.3(e), if applicable, would not include rights to any Patent Controlled by Vertex to the extent such license would conflict with any rights granted to the relevant Sublicensee under such Patent.

ARTICLE 12
CONFIDENTIALITY

12.1 Confidentiality. Except to the extent expressly authorized by this Agreement or otherwise agreed in writing, the Parties agree that, during the Agreement Term and for [***] thereafter, each Party (the "**Receiving Party**") receiving any Confidential Information of the other Party (the "**Disclosing Party**") hereunder will: (a) keep the Disclosing Party's Confidential Information confidential; (b) not publish, or allow to be published, and will not

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

otherwise disclose, or permit the disclosure of, the Disclosing Party's Confidential Information in any manner not expressly authorized pursuant to the terms of this Agreement; and (c) not use, or permit to be used, the Disclosing Party's Confidential Information for any purpose other than as expressly authorized pursuant to the terms of this Agreement. Without limiting the generality of the foregoing, to the extent that Vertex provides to CRISPR (or any CRISPR Entity(ies)) any Confidential Information owned by any Third Party, CRISPR will handle such Confidential Information in accordance with the terms and conditions of this ARTICLE 12 applicable to a Receiving Party.

12.2 Authorized Disclosure. Notwithstanding the foregoing provisions of Section 12.1, each Party may disclose Confidential Information belonging to the other Party to the extent such disclosure is reasonably necessary to:

12.2.1 file or prosecute patent applications as contemplated by this Agreement;

12.2.2 prosecute or defend litigation;

12.2.3 exercise its rights and perform its obligations hereunder; or

12.2.4 comply with Applicable Law.

If a Party deems it reasonably necessary to disclose Confidential Information belonging to the other Party pursuant to this Section 12.2, the Disclosing Party will to the extent possible give reasonable advance written notice of such disclosure to the other Party and take reasonable measures to ensure confidential treatment of such information. In addition to the foregoing, [***] may disclose [***] Confidential Information to Third Parties as reasonably required to facilitate the actual or potential Research, Development, Manufacture or Commercialization of [***] or Products; *provided* that such disclosure is covered by terms of confidentiality and non-use similar to those set forth herein.

Notwithstanding anything to the contrary contained herein, in no event may [***] disclose [***] Confidential Information to any Third Party (including any of CRISPR's investors, collaborators or licensees) engaged in the research, development, manufacture or commercialization of pharmaceutical products.

12.3 SEC Filings and Other Disclosures. Either Party may disclose the terms of this Agreement (i) to the extent required to comply with Applicable Law, including the rules and regulations promulgated by the United States Securities and Exchange Commission or any equivalent governmental agency in any country in the Territory; *provided*, that such Party will reasonably consider the comments of the other Party regarding confidential treatment sought for such disclosure and (ii) to its advisors (including financial advisors, attorneys and accountants), actual or potential acquisition partners, financing sources or investors and underwriters on a need to know basis; *provided* that such disclosure is covered by terms of confidentiality similar to those set forth herein (which may include professional ethical obligations).

12.4 Residual Knowledge Exception. Notwithstanding any provision of this Agreement to the contrary, Confidential Information will not include Residual Knowledge. Any use made by the Receiving Party of Residual Knowledge is on an "as is, where is" basis, with all faults and all representations and warranties disclaimed and at its sole risk.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

12.5 Public Announcements; Publications.

12.5.1 Coordination. CRISPR and Vertex will, from time to time and at the request of the other Party, discuss the general information content relating to this Agreement that may be publicly disclosed; *provided*, *however*, that [***] will have no obligation to consult with [***] with respect to any scientific publication or public announcement concerning [***] Research, Development, Manufacture, Commercialization or use of any [***] or Product (except as otherwise expressly set forth in Section 12.5.3).

12.5.2 Announcements. The Parties will jointly issue a press release, in the form attached hereto as Schedule M, regarding the signing of this Agreement on a date to be determined by Vertex within [***] following the Effective Date. Except as set forth in the preceding sentence and as may be expressly permitted under Section 12.3, or as required to comply with Applicable Law (including the rules and regulations promulgated by the United States Securities and Exchange Commission or any equivalent governmental agency in any country in the Territory), neither Party will make any public announcement regarding this Agreement without the prior written approval of the other Party. For the sake of clarity, nothing in this Agreement will prevent [***] from making any scientific publication or public announcement concerning [***] Research, Development, Manufacture or Commercialization activities with respect to any [***] or Product under this Agreement; *provided*, *however*, that, except as permitted under Section 12.2, [***] will not disclose any of [***] Confidential Information in any such publication or announcement without obtaining CRISPR's prior written consent to do so.

12.5.3 Publications. During the Agreement Term, each Party will submit to the other Party (the "**Non-Disclosing Party**") for review and approval any proposed academic, scientific and medical publication or public presentation related to any Licensed Agent or Product or any activities conducted pursuant to any Research Plan. In each such instance, such review and approval will be conducted for the purposes of preserving the value of the Licensed Technology and the Vertex Technology, the rights granted to Vertex hereunder and determining whether any portion of the proposed publication or presentation containing the Non-Disclosing Party's Confidential Information should be modified or deleted. Written copies of such proposed publication or presentation required to be submitted hereunder will be submitted to the Non-Disclosing Party no later than [***] before submission for publication or presentation (or five Business Days in advance in the case of an abstract). The Non-Disclosing Party will provide its comments with respect to such publications and presentations within [***] of its receipt of such written copy (or [***] in the case of an abstract). The review period may be extended for an additional [***] if the Non-Disclosing Party reasonably requests such extension including for the preparation and filing of patent applications. Notwithstanding anything to the contrary, the Non-Disclosing Party may require that the other Party redact the Non-Disclosing Party's Confidential Information from any such proposed publication or presentation. CRISPR and Vertex will each comply with standard academic practice regarding authorship of scientific publications and recognition of contribution of other parties in any publication. Notwithstanding the foregoing, Vertex's obligation to submit any publication to CRISPR for review and approval under this

Section 12.5.3 will not apply to any publication made with respect to a Collaboration Program following Vertex's exercise of the applicable Option that does not contain CRISPR's Confidential Information or disclose any non-public information included in the Licensed Technology; *provided*, that where reasonably possible, Vertex will provide CRISPR with an advance copy of such publication if such publication is [***].

12.6 Vertex Information Rights.

12.6.1 If Vertex determines in good faith that CRISPR (or any CRISPR Entity(ies)) is an entity that is subject to financial consolidation with Vertex for the purposes of its quarterly and annual financial statements (or otherwise requires such information in order to comply with GAAP), CRISPR will make available to Vertex:

(a) as soon as practicable, but in any event within [***] after the end of each Calendar Quarter (i) an unaudited balance sheet as of the end of such Calendar Quarter, (ii) unaudited statements of income and cash flows for such Calendar Quarter, (iii) an unaudited statement of stockholders' equity for such period, and (iv) a detailed trial balance as of the end of such Calendar Quarter, all prepared in accordance with GAAP (except that such financial statements may (x) be subject to year-end audit adjustments and (y) not contain all notes thereto that may be required in accordance with GAAP) and thereafter will promptly provide such other information as Vertex may reasonably request;

(b) as soon as practicable, but in any event within [***] after the end of each Calendar Year (i) an audited balance sheet as of the end of such Calendar Year, (ii) audited statements of income and cash flows for such Calendar Year, (iii) an audited statement of stockholders' equity for such Calendar Year and (iv) a detailed trial balance as of the end of such Calendar Year, together with related footnotes all prepared in accordance with GAAP and audited and certified by a nationally recognized independent public accounting firm; and

(c) on or prior to December 31 of each Calendar Year (other than the Calendar Year ending December 31, 2015), such [***] as of [***] of such year as prepared by [***]

ARTICLE 13
MISCELLANEOUS

13.1 Assignment. Neither this Agreement nor any interest hereunder will be assignable by either Party without the prior written consent of the other Party, except as follows: (a) Vertex, and subject to Section 13.2, CRISPR, may, subject to the terms of this Agreement, assign its rights and obligations under this Agreement by way of sale of itself or the sale of the portion of such Party's business to which this Agreement relates, through merger, sale of assets or sale of stock or ownership interest; *provided* that such sale is not primarily for the benefit of its creditors; and *provided further* that no CRISPR Entity may assign its rights and obligations hereunder unless all CRISPR Entities are assigning their rights and obligations hereunder to the same Third Party; and (b) either Party may assign its rights and obligations under this Agreement

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

to any of its Affiliates; *provided* that such Party will remain liable for all of its rights and obligations under this Agreement. An assigning Party will promptly notify the other Party of any assignment or transfer under the provisions of this Section 13.1. This Agreement will be binding upon the successors and permitted assigns of the Parties and the name of a Party appearing herein will be deemed to include the names of such Party's successors and permitted assigns to the extent necessary to carry out the intent of this Agreement. Any assignment not in accordance with this Section 13.1 will be void.

13.2 Change of Control of CRISPR.

13.2.1 Notification. CRISPR will notify Vertex in writing promptly (and in any event within [***] Business Days) following the execution of a definitive agreement by any CRISPR Entity, its Affiliates or its equity holders that could reasonably be expected to result in a Change of Control of any CRISPR Entity.

13.2.2 Effects of Change of Control of CRISPR. If during the Agreement Term any CRISPR Entity undergoes a Change of Control to a Competitor, then upon the effective date of such Change of Control (a) Vertex's obligation to provide CRISPR [***] will terminate and (b) Vertex will [***] with respect to the [***].

13.3 Force Majeure. Each Party will be excused from the performance of its obligations under this Agreement to the extent that such performance is prevented by Force Majeure and the nonperforming Party promptly provides notice of the prevention to the other Party. Such excuse will be continued so long as the condition constituting force majeure continues and the nonperforming Party uses Commercially Reasonable Efforts to remove the condition.

13.4 Representation by Legal Counsel. Each Party hereto represents that it has been represented by legal counsel in connection with this Agreement and acknowledges that it has participated in the drafting hereof. In interpreting and applying the terms and provisions of this Agreement, the Parties agree that no presumption will exist or be implied against the Party that drafted such terms and provisions.

13.5 Notices. All notices which are required or permitted hereunder will be in writing and sufficient if delivered personally or sent by nationally-recognized overnight courier, addressed as follows:

If to Vertex:

Vertex Pharmaceuticals Incorporated
Attn: Business Development
50 Northern Avenue
Boston, Massachusetts 02110

with a copy to:

Vertex Pharmaceuticals Incorporated
Attn: Corporate Legal
50 Northern Avenue
Boston, Massachusetts 02110

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

and:

Ropes & Gray LLP
Attn: Marc A. Rubenstein
Prudential Tower
800 Boylston Street
Boston, Massachusetts 02199-3600

If to CRISPR:

CRISPR Therapeutics Ltd.
Attn: Chief Legal Officer
85 Tottenham Court Road
London W1T 4TQ
United Kingdom

with a copy to:

Goodwin Procter LLP
Attn: Christopher Denn
53 State Street
Boston, Massachusetts 02109

or to such other address as the Party to whom notice is to be given may have furnished to the other Party in writing in accordance herewith. In addition, each Party will deliver a courtesy copy to the other Party's Alliance Manager concurrently with such notice. Any such notice will be deemed to have been given: (a) when delivered if personally delivered on a Business Day (or if delivered or sent on a non-business day, then on the next Business Day); or (b) on receipt if sent by overnight courier. Any notices required or permitted under this Agreement that are delivered by Vertex to CRISPR AG pursuant to this Section 13.5 shall be deemed properly delivered hereunder to each of CRISPR UK, CRISPR AG, CRISPR Inc. and Tracr.

13.6 Amendment. No amendment, modification or supplement of any provision of this Agreement will be valid or effective unless made in writing and signed by a duly authorized officer of each of Vertex Parent, Vertex UK and CRISPR AG, CRISPR Inc., CRISPR UK and Tracr.

13.7 Waiver. No provision of this Agreement will be waived by any act, omission or knowledge of a Party or its agents or employees except by an instrument in writing expressly waiving such provision and signed by a duly authorized officer of the waiving Party. The waiver by either of Vertex or CRISPR of any breach of any provision hereof by the other Party will not be construed to be a waiver of any succeeding breach of such provision or a waiver of the provision itself. Written waiver of any provision of this Agreement by of any one of the CRISPR Entities in accordance with this Section 13.7 shall be binding upon each of CRISPR UK, CRISPR AG, CRISPR Inc. and Tracr.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

13.8 Severability. If any clause or portion thereof in this Agreement is for any reason held to be invalid, illegal or unenforceable, the same will not affect any other portion of this Agreement, as it is the intent of the Parties that this Agreement will be construed in such fashion as to maintain its existence, validity and enforceability to the greatest extent possible. In any such event, this Agreement will be construed as if such clause of portion thereof had never been contained in this Agreement, and there will be deemed substituted therefor such provision as will most nearly carry out the intent of the Parties as expressed in this Agreement to the fullest extent permitted by Applicable Law.

13.9 Descriptive Headings. The descriptive headings of this Agreement are for convenience only and will be of no force or effect in construing or interpreting any of the provisions of this Agreement.

13.10 Export Control. This Agreement is made subject to any restrictions concerning the export of products or technical information from the United States of America or other countries that may be imposed upon or related to CRISPR or Vertex from time to time. Each Party agrees that it will not export, directly or indirectly, any technical information acquired from the other Party under this Agreement or any products using such technical information to a location or in a manner that at the time of export requires an export license or other governmental approval, without first obtaining the written consent to do so from the appropriate Governmental Authority.

13.11 Governing Law. This Agreement, and all claims arising under or in connection therewith, will be governed by and interpreted in accordance with the substantive laws of The Commonwealth of Massachusetts, without regard to conflict of law principles thereof.

13.12 Entire Agreement. This Agreement constitutes and contains the complete, final and exclusive understanding and agreement of the Parties and cancels and supersedes any and all prior negotiations, correspondence, understandings and agreements, whether oral or written, between the Parties respecting the subject matter hereof and thereof, including that certain Confidentiality Agreement between Vertex Parent and CRISPR dated May 6, 2015, which is hereby superseded and replaced in its entirety as of the Effective Date, and any Confidential Information disclosed by the Parties under such agreement will be treated in accordance with the provisions of ARTICLE 12.

13.13 Independent Contractors. Both Parties are independent contractors under this Agreement. Nothing herein contained will be deemed to create an employment, agency, joint venture or partnership relationship between the Parties hereto or any of their agents or employees, or any other legal arrangement that would impose liability upon one Party for the act or failure to act of the other Party. Neither Party will have any express or implied power to enter into any contracts or commitments or to incur any liabilities in the name of, or on behalf of, the other Party, or to bind the other Party in any respect whatsoever.

13.14 Interpretation. Except where the context expressly requires otherwise, (a) the use of any gender herein will be deemed to encompass references to either or both genders, and the use of the singular will be deemed to include the plural (and vice versa), (b) the words “include,” “includes” and “including” will be deemed to be followed by the phrase “without limitation,”

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(c) the word “will” will be construed to have the same meaning and effect as the word “shall,” (d) any definition of or reference to any agreement, instrument or other document herein will be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein), (e) any reference herein to any Person will be construed to include the Person’s successors and assigns, (f) the words “herein,” “hereof” and “hereunder,” and words of similar import, will be construed to refer to this Agreement in its entirety and not to any particular provision hereof, (g) all references herein to Sections, Schedules or Exhibits will be construed to refer to Sections, Schedules or Exhibits of this Agreement, and references to this Agreement include all Schedules and Exhibits hereto, (h) the word “notice” will mean notice in writing (whether or not specifically stated) and will include notices, consents, approvals and other written communications contemplated under this Agreement, (i) provisions that require that a Party, the Parties or any committee hereunder “agree,” “consent” or “approve” or the like will require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter, approved minutes or otherwise (but excluding e-mail and instant messaging), (j) references to any specific law, rule or regulation, or article, section or other division thereof, will be deemed to include the then-current amendments thereto or any replacement or successor law, rule or regulation thereof, (k) any definition of or reference to any agreement, instrument or other document herein will be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein), and (l) the term “or” will be interpreted in the inclusive sense commonly associated with the term “and/or.”

13.15 No Third Party Rights or Obligations. No provision of this Agreement will be deemed or construed in any way to result in the creation of any rights or obligations in any Person not a Party to this Agreement.

13.16 Further Actions. Each Party agrees to execute, acknowledge and deliver such further instruments, and to do all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

13.17 Counterparts. This Agreement may be executed in two counterparts, each of which will be an original and both of which will constitute together the same document. Counterparts may be signed and delivered by facsimile or digital transmission (.pdf), each of which will be binding when received by the applicable Party.

13.18 CRISPR Entities. Notwithstanding anything to the contrary in this Agreement:

13.18.1 CRISPR UK, CRISPR AG, CRISPR Inc. and Tracr shall be jointly and severally liable to Vertex for all obligations of CRISPR under this Agreement;

13.18.2 Breach or violation of any representation, warranty covenant or other obligation of CRISPR under this Agreement may result from, be caused by or arise from the act or omission of any one or more of the CRISPR Entities;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

13.18.3 Any particular right or interest of CRISPR under this Agreement shall only be exercisable once by the first CRISPR Entity to exercise such right or interest hereunder on behalf of CRISPR (*i.e.*, Vertex shall not be liable to more than one CRISPR Entity with respect to any particular right or interest of CRISPR hereunder, including, without limitation, any payment obligations of Vertex hereunder); and

13.18.4 Any consent or approval of CRISPR permitted or required under this Agreement by any one of CRISPR UK, CRISPR AG, CRISPR Inc. or Tracr shall be binding upon all of the CRISPR Entities.

[*SIGNATURE PAGE FOLLOWS*]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their representatives thereunto duly authorized as of the Effective Date.

VERTEX PHARMACEUTICALS INCORPORATED

By: /s/ Ian Smith

Name: Ian Smith

Title: Chief Financial Officer

CRISPR THERAPEUTICS AG

By: /s/ Rodger Novak

Name: Rodger Novak

Title: CEO

VERTEX PHARMACEUTICALS LIMITED

By: /s/ Ian Smith

Name: Ian Smith

Title: Director

CRISPR THERAPEUTICS LIMITED

By: /s/ Rodger Novak

Name: Rodger Novak

Title: CEO

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule A

CRISPR Reserved Targets

Following are the CRISPR Reserved Targets:

1. The following Targets:

a. [***]

b. [***]

c. [***]

d. [***]

e. [***]

f. [***]

h. [***]

i. [***]

j. [***]

2. All Targets that are, [***] (a) [***] or (b) [***] or (c) [***].

3. All Targets that are, at the time Vertex has proposed to add such a Target to the Vertex Target List, [***].

4. All Targets that are, at the time Vertex has proposed to add such a Target to the Vertex Target List, Targets that are [***].

All Targets that are, at the time Vertex has proposed to add such a Target to the Vertex Target List, Targets that are [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule B

Initial Vertex Targets

1) **CFTR (cystic fibrosis transmembrane conductance regulator)**

2) [***]

3) [***]

4) [***]

5) [***]

6) [***]

7) [***]

8) [***]

9) [***]

10) [***]

11) [***]

12) [***]

13) [***]

Initial Collaboration Targets

1) **CFTR (cystic fibrosis transmembrane conductance regulator)**

2) [***]
[***]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule C

Option Exercise Data Package

- Option Exercise Data Package. All data for the Option Exercise Data Package is pre-specified by the Collaboration Program Working Group and is reviewed and endorsed by the JRC.
- The responsibilities below would be specified on a program by program basis and endorsed by the JRC ahead of beginning any Research Plan.
- Upon completion of the work, the data for each item is presented to the JRC and compared to the pre-specification. The JRC endorses the interpretation that the data are or are not consistent with the pre-specification.

Item	Party Responsible for Generating Item/Data
[***]	CRISPR & Vertex
[***]	CRISPR
[***]	CRISPR
[***]	CRISPR and Vertex
[***]	Vertex and CRISPR
[***]	Vertex
[***]	Vertex
[***]	CRISPR

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule D

Initial Research Plan Components

The following are key elements for the Research Plans. A full Research Plan will be created by the Collaboration Program Working Group utilizing these elements in accordance with Section 2.2. The provisions will be approved by the JRC in accordance with ARTICLE 3.

Target Name	Description	
Work Plan Items	Listing of all items required to complete the work plan. This should include all of the items in Schedule C	Listing of responsible parties for each of the work items.
Key milestones	Listing of key waypoints on the way to a transition agreement.	Listing of key dates for each of the milestones.
Budget	Out of Pocket Spend - CRISPR FTE - CRISPR FTE - Vertex	Listing of dollar amounts
Key pieces of data and required values	Listing of key pieces of data expected in the Option Exercise Data Package. This is a critical element and will have to be carefully considered. E.g. for a [***] etc. are other possible values. These will be highly Target specific.	Minimum acceptable values for each of these data. These should be prospective and objective wherever possible.
Key dependencies	List key dependencies on various elements.	
Assumptions	List project assumptions.	
Risks	Listing of key risks, probabilities and impacts	Describe mitigation/ contingency/ avoidance plan

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule E

Subcontractors

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE E

Schedule F

CRISPR Background Know-How
(as of 26 October 2015)

1) Platform related automation and high-throughput: [***]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule G

Terms of Joint Development & Commercialization Agreement

ARTICLE 1
DEFINITIONS

1.1 "**Audited Party**" has the meaning set forth in Section 7.6.

1.2 "**Auditing Party**" has the meaning set forth in Section 7.6.

1.3 "**Baseball Arbitration**" means "**baseball**" style arbitration in accordance with the arbitration procedure set forth on Schedule I of the Agreement.

1.4 "**Commercialization Budget**" has the meaning set forth in Section 5.1.

1.5 "**Commercialization Costs**" means the sum of the following costs and expenses incurred by the Parties or their respective Affiliates, in Commercializing the Shared Products (and related Manufacturing activities) in the Territory, in each case, to the extent incurred in accordance with the Commercialization Plan and Commercialization Budget:

(a) Expenses incurred in connection with the [***];

(b) Expenses incurred to conduct [***];

(c) [***] representing the [***] as defined in the [***], in each case, to the extent directly attributable to [***];

(d) Expenses identifiable to the [***], in each case, to the extent incurred specifically with respect [***];

(e) Expenses incurred in connection with the [***];

(f) Expenses directly associated with [***], in each case, that are incurred with respect to a [***];

(g) [***];

(h) Expenses reasonably necessary and identifiable to the [***] with respect to: [***];

(i) [***] and

(j) any other Expenses approved by the JCC and included in the Commercialization Budget that are not otherwise included in any other Commercialization Cost category.

Commercialization Costs will exclude [***].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.6 "**Commercialization Plan**" has the meaning set forth in Section 5.1.

1.7 "**Development Budget**" has the meaning set forth in Section 3.1.

1.8 "**Development Costs**" means the sum of the following costs and expenses incurred by the Parties and their respective Affiliates in Developing the Shared Product (and related Manufacturing activities) in the Territory, in each case, to the extent incurred in accordance with the Global Development Plan and the Development Budget, including:

(a) Expenses incurred in [***];

(b) [***];

(c) [***] incurred in connection with [***];

(d) Expenses associated with [***], to the extent incurred with respect to [***];

(e) Expenses incurred in connection with [***], including the Parties' [***];

(f) Expenses associated with [***]; and

(g) any other Expenses incurred for [***] and included in the [***].

Development Costs will exclude [***].

1.9 "**Expenses**" means Out-of-Pocket Costs and FTE Costs.

1.10 "**FTE Costs**" means the product of (a) the number of FTEs (proportionately, on a per-FTE basis) used by a Party or its Affiliates in directly performing activities assigned to such Party under and in accordance with the Global Development Plan, Commercialization Plan or Medical Affairs Plan, as applicable, and (b) the FTE Rate.

1.11 "**FTE**" means one employee full-time for one year or more than one person working the equivalent of a full-time person, working directly on performing activities under the Global Development Plan, Medical Affairs Plan or Commercialization Plan, as applicable, where "**full-time**" is considered [***] hours for one Calendar Year. No additional payment will be made with respect to any individual who works more than [***] hours per Calendar Year and any individual who devotes less than [***] hours per Calendar Year will be treated as an FTE on a pro rata basis based upon the actual number of hours worked divided by [***].

1.12 "**Global Development Plan**" has the meaning set forth in Section 3.1.

1.13 "**Global Branding Strategy**" has the meaning set forth in Section 5.2.2.

1.14 "**JCC**" has the meaning set forth in Section 2.1.

1.15 "**JDC**" has the meaning set forth in Section 2.1.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE G

1.16 "**JSC**" has the meaning set forth in Section 2.1.

1.17 "**Lead Commercialization Party**" has the meaning set forth in Section 5.1.

1.18 "**Licensed Vertex Know-How**" means (a) [***], that (i) [***] and (ii) [***], (b) [***] and (c) [***].

1.19 "**Licensed Vertex Background Patents**" means (a) [***] that (i) [***] and (ii) [***], (b) [***] and (c) the [***].

1.20 "**Manufacturing Costs**" means the costs of Manufacturing Shared Product, which (a) to the extent such Shared Product is Manufactured by a Party or its Affiliates, [***] and (b) to the extent such Shared Product is Manufactured by a Third Party in an arms-length transaction, [***].

1.21 "**Manufacturing Working Group**" has the meaning set forth in Section 6.1.

1.22 "**Medical Affairs Activities**" means responding to external inquiries or complaints, the planning for and conduct of investigator sponsored Clinical Trials not included in the Global Development Plan, medical education, speaker programs, advisory boards, thought leader activities, educational grants and fellowships, local country government affairs, Phase 3b Clinical Trials, phase IV/post-Regulatory Approval Clinical Trials, generating health economics and outcomes research data from patient reported outcomes, prospective observational studies and retrospective observational studies, and economic models and reimbursement dossiers, deployment of MSLs, medical affairs clinical trial management, doctors in field (other than MSLs), scientific publications and medical communications.

1.23 "**Medical Affairs Budget**" has the meaning set forth in ARTICLE 4.

1.24 "**Medical Affairs Costs**" means all Expenses incurred by the Parties in connection with the conduct of Medical Affairs Activities in accordance with the Medical Affairs Plan and the Medical Affairs Budget;

1.25 "**Medical Affairs Plan**" has the meaning set forth in ARTICLE 4.

1.26 "**MSL**" means medical science liaisons.

1.27 "**Net Loss**" means, for a given period, Net Sales (including deemed Net Sales under Section 8.6.5 of the Agreement) in the Territory less Program Expenses, where the result is a negative number.

1.28 "**Net Profit**" means, for a given period, Net Sales (including deemed Net Sales under Section 8.6.5 of the Agreement) in the Territory less Program Expenses, where the result is a positive number.

1.29 "**Opt-Out Royalty**" has the meaning set forth in Section 11.4.

1.30 "**Other Out-of-Pocket Costs**" means:

(a) Expenses associated with [***] pursuant to the [***];

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) [***];

(c) [***], in each case, that are [***]; and

(d) Expenses incurred in connection with the [***].

1.31 "**Patent Costs**" means all Expenses reasonably allocated to the Shared Products for the prosecution, maintenance and enforcement of Patents that Cover the Shared Products.

1.32 "**Pharmacovigilance Agreement**" has the meaning set forth in Section 8.1.

1.33 "**Program Expenses**" means Development Costs, Commercialization Costs, Medical Affairs Costs, Patent Costs and Other Out-of-Pocket Costs.

1.34 "**Project Leader**" has the meaning set forth in Section 3.1.

1.35 "**Project Team**" has the meaning set forth in Section 3.1.

1.36 "**Reconciliation Report**" has the meaning set forth in Section 7.4.

1.37 "**Subcontract**" has the meaning set forth in ARTICLE 9.

1.38 "**Subcontractor**" has the meaning set forth in ARTICLE 9.

1.39 "**Summary Statement**" has the meaning set forth in Section 7.3.

1.40 "**Trademark**" means all trademarks, service marks, trade names, brand names, sub-brand names, trade dress rights, product configuration rights, certification marks, collective marks, logos, taglines, slogans, designs or business symbols and all words, names, symbols, colors, shapes, designations or any combination thereof that function as an identifier of source or origin or quality, whether or not registered, and all statutory and common law rights therein, and all registrations and applications therefor, together with all goodwill associated with, or symbolized by, any of the foregoing.

ARTICLE 2
GOVERNANCE

2.1 Committees. Within [***] after execution of the Joint Development & Commercialization Agreement, the Parties will establish a joint steering committee (the "**JSC**") to provide high-level oversight and decision-making regarding the activities of the Parties under the Joint Development & Commercialization Agreement. The JSC's responsibilities will include (a) reviewing and overseeing the overall global Development, Manufacture and Commercialization of the Shared Products in the Field, (b) overseeing the JDC, JCC and any other committees and working groups established with respect to the Shared Product and resolving matters on which the JDC, JCC or such committees and working groups are unable to reach consensus and (c) performing such other functions as may be established in the Joint

Development & Commercialization Agreement. The JSC will oversee a joint development committee (the "**JDC**") and a joint commercialization committee (the "**JCC**") and such other committees and working groups as the JSC may determine are appropriate from time to time.

2.2 Decision-Making. The JSC, JDC, JCC and all other committees and working groups [***] with the goal being to maximize the chance of successfully developing and commercializing a [***] in a manner consistent with Applicable Laws and the Joint Development & Commercialization Agreement. Disputes arising out of the JDC, JCC or any other committee or working group will be escalated to the JSC for resolution. Disputes arising at the JSC will be referred to senior executives of each Party for resolution. whereupon the Parties' senior executives will meet in person if requested by either such senior executive and attempt in good faith to resolve such dispute by negotiation and consultation for a [***] period following such referral. If the senior executives do not resolve such dispute within such [***] period, such dispute shall be submitted to [***].

ARTICLE 3
DEVELOPMENT

3.1 Global Development Plan. The JDC will oversee the Development of Shared Products by the Parties in the Field in the Territory. Each Shared Product will be Developed in accordance with a global development plan (the "**Global Development Plan**"). The Global Development Plan will include a plan for the Development of the Shared Product in the Territory through Regulatory Approval, including a regulatory strategy, high-level study design criteria, an allocation of responsibilities between the Parties, timelines and a budget for activities conducted under the Global Development Plan (the "**Development Budget**"). The JDC will update the Global Development Plan [***] (or more frequently as needed) and submit it to the JSC for approval. The Parties will establish a project team (the "**Project Team**") to oversee and coordinate activities under the Global Development Plan. The Project Team be formed with an experienced team leader ("**Project Leader**"), and the composition of the Project Team will be determined by the Project Leader based on available personnel from each Party across functions. The Project Team will conduct its responsibilities under the Global Development Plan in good faith and with reasonable care and diligence. The Project Team will provide the JDC with periodic updates regarding the progress of activities pursuant to the Global Development Plan.

3.2 Development Activities.

3.2.1 Regulatory Matters. Regulatory activities will be jointly carried out by the Project Team under the guidance of the JDC. All Regulatory Filings and Regulatory Approvals that relate to Shared Products shall be filed by and held in the name of [***] or its relevant Affiliates. [***] shall use Commercially Reasonable Efforts, in consultation with [***] to seek to obtain and maintain Regulatory Approval for the Shared Product in the Field. [***] will oversee, monitor and manage all regulatory interactions, communications and filings with, and submissions to, Regulatory Authorities with respect to the Shared Products. [***], in consultation with [***], will control all regulatory activities with respect to the Shared Products, including determining the labeling strategy and the content of submissions; *provided* that [***] may review and comment on such strategies and submissions. Vertex will prepare all regulatory submissions and provide [***] with advance drafts of any material documents or other material

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

correspondence pertaining to the Shared Products, including any proposed labeling, that [***] plans to submit to any Regulatory Authority. [***] may provide comments regarding such documents and other correspondence prior to their submission, which comments [***] will consider in good faith. [***] will provide [***] with copies of all material submissions it makes to, and all material correspondence it receives from, a Regulatory Authority pertaining to a Regulatory Approval of a Shared Product within [***] after receipt. [***] will provide [***] with reasonable advance notice of any meeting or teleconference with any Regulatory Authority with respect to the Shared Products. Subject to Applicable Law, [***] will have the right to participate as an observer in all material meetings, conferences and discussions by [***] with Regulatory Authorities pertaining to Development of the Shared Products or Regulatory Approval of the Shared Products.

3.2.2 Clinical Trials. The JDC will allocate responsibility between the Parties for the conduct of Clinical Trials and the various other Development activities addressed in the Global Development Plan. [***] will have final decision-making authority with respect to the protocol for any Clinical Trial conducted under the Global Development Plan and the statistical analysis plan for any such Clinical Trial. The Party that has responsibility for conducting the Clinical Trial will have the responsibility for the packaging and labeling of clinical drug supplies, unless otherwise agreed by the Parties.

3.2.3 Independent Activities. The Joint Development & Commercialization Agreement will include a mechanism for each Party to propose additional Clinical Trials for inclusion in the Global Development Plan. If the other Party does not agree to include such additional Clinical Trial in the Global Development Plan, the requesting Party may conduct such Clinical Trial at its sole expense (*i.e.* such expenses will not be included as Development Costs); *provided* that neither Party may conduct any Clinical Trial that [***]. The non-requesting Party will not have the right to use the data resulting from such Clinical Trial in a substantive manner as the basis for obtaining new or expanded Regulatory Approval for a Product in the Field or for commercial purposes for a Product in the Field unless and until such Party reimburses the requesting Party for [***] of the Development Costs..

3.3 Diligence. Each Party will use Commercially Reasonable Efforts to execute and to perform, or cause to be performed, the activities assigned to it in the Global Development Plan, and to cooperate with the other Party in carrying out the Global Development Plan in accordance with the timelines therein. Each Party and its Affiliates will conduct its Development activities in good scientific manner and in compliance with Applicable Law. Notwithstanding anything to the contrary contained herein, a Party or its Affiliates will not be obligated to undertake or continue any Development activities with respect to the Shared Products if such Party (or any of its Affiliates) reasonably determines that performance of such Development activity would violate Applicable Law or infringe or misappropriate a Third Party's intellectual property.

ARTICLE 4
MEDICAL AFFAIRS ACTIVITIES

The Parties, acting through the JSC, will develop and agree upon a global medical affairs plan for the Shared Product that describes the Medical Affairs Activities to be conducted in the

Territory, key tactics and strategies for implementing those activities, the relative responsibilities of the Parties and the associated budget for such activities (such plan, the "**Medical Affairs Plan**" and such budget, the "**Medical Affairs Budget**"). CRISPR will lead and manage Medical Affairs Activities in the United States and Vertex will lead and manage Medical Affairs Activities outside of the United States, in each case, in accordance with the Medical Affairs Plan. The number of MSLs to be deployed in each jurisdiction will be determined by the JSC at least [***] prior to potential launch.

ARTICLE 5
COMMERCIALIZATION

5.1 Commercialization Plan. The JCC will oversee the Commercialization of Shared Products by the Parties in the Field in the Territory. No later than [***] prior to the anticipated launch of the Shared Product in the first country in the Territory, the JCC will develop and submit to the JSC for approval, a Commercialization plan (the "**Commercialization Plan**") that sets forth the Commercialization activities to be undertaken by the Parties with respect to the Commercialization of the Shared Product in the Territory. The Commercialization Plan may include activities on a region-by-region or country-by-country basis, as determined by the JCC. The JCC will update the Commercialization Plan on [***] (or more frequently as needed) and submit it to the JSC for approval. The Commercialization Plan will include (a) the Global Branding Strategy, (b) a marketing strategy, (c) a communications strategy that includes plans for public relations, conferences and exhibitions and other external meetings, internal meetings and communications, publications and symposia, internet activities and core brand package, (d) a high level operating plan for the implementation of such strategies on [***], including information related to Shared Product positioning, core messages to be communicated and pricing strategies, (e) a detailing strategy, (f) a pricing strategy, (g) all other material activities to be conducted in connection with the Commercialization of the Shared Product in the Field in the Territory and (h) a budget for activities conducted under the Commercialization Plan (the "**Commercialization Budget**"). The Commercialization Plan will include a meaningful role for both Parties. In allocating responsibilities between the Parties, the JCC will take into consideration each Party's expertise, capabilities, staffing and available resources to take on such activities, as well as the Parties' intention to provide CRISPR an opportunity to build and expand its expertise, capabilities, staffing and available resources in connection with performing Commercialization activities allocated to it. CRISPR shall be the Commercializing lead for Shared Products in the United States and Vertex shall be the Commercializing lead for Shared Products outside of the United States. The Commercializing lead, with respect to the United States or outside of the United States, respectively, shall be referred to herein as the "**Lead Commercialization Party**" for such jurisdiction (as applicable, the "**Lead Commercialization Party**" Unless otherwise specified in the Commercialization Plan, the Parties will jointly be responsible for conducting all Commercialization activities outside of the United States, such activities to be determined by the JSC.

5.2 Commercialization Activities.

5.2.1 Training. The Parties will jointly prepare training programs and materials for employees and sales representatives with respect to the Shared Product, with the goal of ensuring compliance with all Applicable Laws and each Party's compliance policies. Each Party will be solely responsible for training its employees and sales representatives in accordance with such training program.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE G

5.2.2 Global Branding Strategy. The JCC will develop a global branding strategy for Shared Products in the Territory, including, with respect to each Shared Product, a life cycle plan, brand vision, positioning, key messaging, concept and imagery, Trademarks (including name and logos), brand public relations and supporting market research (the "**Global Branding Strategy**") and submit such strategy to the JSC for approval.

5.2.3 Trademarks. The JCC will select a product Trademark for each Shared Product throughout the world consistent with the Global Branding Strategy. Each Shared Product will be promoted and sold in the Territory under the applicable Trademarks.

5.2.4 Marketing. The JCC will agree upon a marketing strategy for the Shared Product, including Shared Product positioning, messaging, appearance and launch sequencing, consistent with the Global Branding Strategy. Marketing activities and responsibilities for each Party will be determined by the JCC.

5.2.5 Managed Markets and Market Access. The JCC will agree upon a strategy for the managed markets and market access for the Shared Product, including, without limitation, payer strategy and account management. Such activities and responsibilities for each Party will be determined by the JCC.

5.2.6 Pricing. The JCC will establish a global pricing strategy for the Shared Product (including list price, targeted net pricing, sales-weighted average discounts and rebates, the approach to pricing with different types of accounts and plans, types of discounts and rebates) in the Territory. The responsibility of each Party regarding the implementation of such global pricing strategy, including negotiating pricing and reimbursement with governments and private payers will be determined by the JCC.

5.2.7 Field Sales. The Parties will jointly promote the Shared Product (including performing sales calls) in the Territory in accordance with the Commercialization Plan. CRISPR will lead and manage the promotion of the Shared Product in the United States. Vertex will have the right provide [***] of the FTES with respect to the Shared Product in the United States. Vertex will lead and manage promotion of the Shared Product outside of the United States and CRISPR will have the right to provide [***] of the FTES with respect to the Shared Product in the Major Market Countries (outside of United States). CRISPR and Vertex will each ensure that its and its Affiliates' sales representatives do not make any representation, statement, warranty or guaranty with respect to the Shared Product that is not consistent with the applicable current package insert of prescribing information or other documentation accompanying or describing a Shared Product, including mutually approved limited warranty and disclaimers, if any. CRISPR and Vertex will each ensure that its and its Affiliates' sales representatives do not make any statements, claims or undertakings to any person with whom they discuss or promote the Shared Products that are not consistent with, or provide or use any labeling, literature or other materials other than those promotional materials currently approved for use by the JCC.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE G

5.2.8 Distribution and Patient Services. The Parties will jointly be responsible for distribution and patient services for the Shared Product in the Territory, including contracting with applicable service providers, such activities to be determined by the JCC [***] prior to launch of the Shared Product.

5.2.9 Booking Sales; Distribution. CRISPR will invoice, sell and book all sales of Shared Products in the United States and be responsible for warehousing and distributing such Shared Products in the United States. Vertex will invoice, sell and book all sales of Shared Products outside of the United States and be responsible for warehousing and distributing such Shared Products outside of the United States.

5.3 Diligence. Each Party will use Commercially Reasonable Efforts to execute and to perform, or cause to be performed, the activities assigned to it under the Commercialization Plan. Each Party and its Affiliates will conduct its Commercialization activities in compliance with Applicable Law. Notwithstanding anything to the contrary contained herein, a Party or its Affiliates will not be obligated to undertake or continue any Commercialization activities with respect to the Shared Products if such Party (or any of its Affiliates) reasonably determines that performance of such Commercialization activity would violate Applicable Law or infringe or misappropriate a Third Party's intellectual property.

ARTICLE 6
MANUFACTURING

6.1 Quality Agreement. The Parties will meet to negotiate in good faith and agree on quality analysis and control criteria for the Manufacture of the Shared Product within [***] after the effective date of the Joint Development & Commercialization Agreement. The agreed upon criteria will be set forth in a quality agreement containing mutually agreed terms and conditions that are customary for agreements of this type.

6.2 Working Group. The Parties will establish a manufacturing working group (the "**Manufacturing Working Group**") to oversee matters relating to the Manufacture of the Shared Product. The Manufacturing Working Group will report to the JDC for Development-related Manufacturing matters and will report to the JCC for Commercialization-related Manufacturing matters. The Manufacturing Working Group's responsibilities will include: (a) developing plans to transfer Manufacturing-related Know-How between the Parties as needed to facilitate the Manufacture of the Shared Product; (b) establishing standards applicable to each Party's Manufacturing activities and reviewing each Party's performance against such standards; conducting technical reviews, and (c) sharing planning and budgeting information with the JDC and JCC.

6.3 Responsibility. The Parties will share responsibility for Manufacturing clinical supplies of Shared Product as determined by the Manufacturing Working Group. Unless otherwise agreed by the Parties, Vertex will be responsible for Manufacturing commercial supplies of Shared Product.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE 7
ALLOCATION OF NET PROFIT AND NET LOSS

7.1 Allocation. Each Party will be entitled to 50% of the Net Profits or will bear 50% of the Net Loss, as applicable, during the term of the Joint Development & Commercialization Agreement. If either Party elects to Opt-Out (as defined below), the other Party shall pay royalties in accordance with Section 11.4.

7.2 Calculation. Net Profit or Net Loss will be calculated for each Calendar Quarter by determining the [***] and subtracting [***].

7.3 Payment of Expenses; Summary Statements. Subject to reconciliation as provided in Section 7.4, the Party initially incurring Program Expenses will be responsible for and pay for all such Program Expenses so incurred. Each Party will maintain the books and records referred to in Section 7.6 and will accrue all Program Expenses and Net Sales) in accordance with the terms and conditions hereof and in accordance with GAAP. Within [***] after the end of each [***], each Party will submit to the other a non-binding, good faith estimate of the Program Expenses accrued and Net Sales during the just-ended [***]. Within [***] after the end of each [***], each Party will submit to the other a written report reflecting the accrual of Program Expenses and Net Sales during the just-ended [***], except that each Party's submission for the last month of such [***] will be a good faith estimate and not actual amounts (each, a "**Summary Statement**"). Each Summary Statement (after the initial Summary Statement) will reflect an adjustment for the actual amount of the previous [***] as needed. Any reporting and reconciliation of variances between estimated and actual costs and expenses may be delayed by a [***] as reasonably necessary in light of a Party's internal reporting procedures. The Parties' respective Summary Statements will serve as the basis of the Reconciliation Reports prepared by the Parties pursuant to Section 7.4. Upon the request of either Party from time to time, the Parties' respective finance departments, coordinated by the JDC, or JCC, as appropriate, will discuss any questions or issues arising from the Summary Statements, including the basis for the accrual of specific Program Expenses.

7.4 Reconciliation. Vertex will prepare a reconciliation report, as soon as practicable after the receipt of CRISPR's Summary Statement, but in any event within [***] after the end of each [***], accompanied by reasonable supporting documents and calculations sufficient to support each Party's financial reporting obligations, independent auditor requirements and obligations under the Sarbanes-Oxley Act, which reconciles the amounts accrued and reported in each Party's Summary Statement during such [***] and the share of the Net Profits and Net Losses to be allocated to each of the Parties for such [***] in accordance with Section 7.1 (such report, the "**Reconciliation Report**"). Payment to reconcile Net Profit or Net Loss shall be made by the owing Party to the other Party within [***] after such Reconciliation Report is complete.

7.5 Cost Overruns. If a Party's aggregate Development Costs, Medical Affairs Costs or Commercialization Costs in any Calendar Year are likely to exceed or exceed those set forth in the Development Budget, Medical Affairs Budget or Commercialization Budget, as applicable, for all of its activities under the Development Plan, Medical Affairs Plan or Commercialization Plan, as applicable, in such Calendar Year by up to [***] of the aggregate

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE G

amount set forth in the Development Budget, Medical Affairs Budget or Commercialization Budget, as applicable, such Party will provide the other Party with an explanation for such excess costs and expenses, and such excess costs and expenses will be included in the Development Costs, Medical Affairs Cost or Commercialization Costs, as applicable, and shared by the Parties as provided herein. To the extent a Party's aggregate Development Costs, Medical Affairs Costs or Commercialization Costs, as applicable, exceed those set forth in the Development Budget, Medical Affairs Budget or Commercialization Budget, as applicable, by more than [***], unless otherwise agreed by the Parties, such Expenses will not be shared by the Parties and the Party incurring such Expenses will be solely responsible for such Expenses.

7.6 Books and Records. Each Party will keep and maintain accurate and complete records regarding Program Expenses and Net Sales, during the [***] preceding Calendar Years. Upon [***] prior written notice from the other Party (the "**Auditing Party**"), the Party required to maintain such records (as applicable, the "**Audited Party**") will permit an independent certified public accounting firm of internationally recognized standing, selected by the Auditing Party and reasonably acceptable to the Audited Party, to examine the relevant books and records of the Audited Party and its Affiliates, as may be reasonably necessary to verify the Summary Statements and Reconciliation Reports. An examination by the Auditing Party under this Section 7.6 will occur not more than [***] in any Calendar Year and will be limited to the pertinent books and records for any Calendar Year ending not more than [***] before the date of the request. The accounting firm will be provided access to such books and records at the Audited Party's facility or facilities where such books and records are normally kept and such examination will be conducted during the Audited Party's normal business hours. The Audited Party may require the accounting firm to sign a customary non-disclosure agreement before providing the accounting firm access to its facilities or records. Upon completion of the audit, the accounting firm will provide both the Auditing Party and the Audited Party a written report disclosing whether the applicable Summary Statements and Reconciliation Reports are correct or incorrect and the specific details concerning any discrepancies. No other information will be provided to the Auditing Party. If the report or information submitted by the Audited Party results in an underpayment or overpayment, the Party owing underpaid or overpaid amount will promptly pay such amount to the other Party, and, if, as a result of such inaccurate report or information, such amount is more than [***] of the amount that was owed the Audited Party will reimburse the Auditing Party for the reasonable expense incurred by the Auditing Party in connection with the audit.

ARTICLE 8
ADVERSE EVENTS

8.1 Pharmacovigilance Agreement. The Parties will meet to negotiate in good faith and agree on processes and procedures for sharing safety information within [***] after the effective date of the Joint Development & Commercialization Agreement. The agreed upon processes and procedures will be set forth in a pharmacovigilance agreement (the "**Pharmacovigilance Agreement**") containing mutually agreed terms and conditions that are customary for agreements of this type. The Pharmacovigilance Agreement will include provisions establishing a joint safety oversight working group to oversee the conduct of the Parties' activities under the Pharmacovigilance Agreement and to coordinate the Parties' interactions with respect to pharmacovigilance activities.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

8.2 Global Safety Database. The JCC will establish pharmacovigilance and safety strategy for the Shared Product. Pursuant to such strategy, Vertex will establish the global safety database for such Shared Product. Vertex will maintain a global database of safety information including, but not limited to, adverse events and pregnancy reports for such Shared Product, which will be used for regulatory reporting and responses to safety queries from Regulatory Authorities by both Parties. CRISPR will, and will cause its Affiliates to, transfer all adverse events information in its or their possession or control to the global safety database within a mutually agreed period of time that provides Vertex with sufficient time to enter all of the data and to obtain validation of the database.

8.3 Risk Management and Signal Detection Activities. Vertex shall be primarily responsible for all signal detection and risk management activities for Shared Products. These signal detection activities shall include, but are not limited to, proactive review and evaluation of all safety information from the Global Safety Database (including by way of example, Individual Case Safety Reports, aggregate safety information, literature reports, and non-clinical data).

ARTICLE 9
SUBCONTRACTING

Each Party may subcontract the performance of any activities undertaken by such Party in accordance with the Global Development Plan, Medical Affairs Plan or Commercialization Plan to one or more Third Parties (each such Third Party, a "**Subcontractor**") pursuant to a written agreement (a "**Subcontract**"). Notwithstanding the foregoing, if either Party desires to subcontract any such activities, it will first discuss the matter with the other Party and reasonably consider using the other Party for such subcontracted activities, taking into account the capabilities of the other Party and potential impact on costs, as a potential alternative to subcontracting such activities to a Third Party. If, following such discussion a Party still desires to subcontract the performance of any such activity to one or more Third Parties, it may proceed to do so; *provided*, that prior to entering into any Subcontract which the subcontracting Party reasonably anticipates will entail payments to the Subcontractor in excess of [***] with respect to subcontracted activities under the Joint Development & Commercialization Agreement, the subcontracting Party will obtain the JSC's approval, not to be unreasonably withheld, of use of the proposed Subcontractor to conduct the activities proposed to be subcontracted prior to execution of the applicable Subcontract.

ARTICLE 10
LICENSES; IP

10.1 License Grants. Vertex will grant CRISPR a co-exclusive (with Vertex) license under Vertex's and its Affiliates' interest in the Licensed Vertex Know-How and Licensed Vertex Patents, with the right to Sublicense through multiple tiers (subject to Section 10.2), to Research, Develop, Manufacture, have Manufactured, use, keep, sell, offer for sale, import, export and Commercialize Shared Products in the Field in the Territory. Additionally, the license rights granted by CRISPR to Vertex under Section 5.3.1 of the Agreement will be modified to be co-exclusive (with CRISPR) for Shared Products in the Territory.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

10.2 Sublicensing. Subject to the rights granted or retained by the Parties under the Joint Development & Collaboration Agreement, either Party may Sublicense (through multiple tiers) to its Affiliates or Third Parties any and all rights granted to it by the other Party or retained by such Party with respect to the Research, Development, Manufacture and Commercialization of the Shared Products; *provided*, that neither Party may grant any such Sublicense in a Major Market Country without the prior written consent of the other Party; and *provided*, *further*, that if either Party intends to Sublicense any such rights in any country, it will discuss the matter with the Other Party and in good faith consider using the Other Party to conduct any sublicensed activities. If a Party grants any such Sublicense it will remain responsible for its obligations under the Joint Development & Commercialization Agreement and will be responsible for the performance of the relevant sublicensee.

10.3 [***]. If a Party believes, in its reasonable judgment, that it may be necessary to obtain rights under any [***] in order to Research, Develop, Manufacture or Commercialize a Shared Product in the Field, such Party will promptly notify the other Party and the Parties will discuss such matter in good faith. Unless otherwise agreed, [***] will have the first right to enter into a license with the relevant Third Party to acquire rights to the [***]. If the Parties are unable to agree on whether any Know-How or Patents are [***], the Party that believes such rights are necessary may enter into a license with the relevant Third Party; *provided*, that [***] unless and until the other Party agrees, or as determined by arbitration or other dispute resolution mechanisms to [***].

10.4 Trademarks. The Lead Commercialization Party will own and retain all rights to Trademarks for Shared Products in their respective jurisdiction, and all goodwill associated with or attached thereto arising out of the use thereof by the Parties, their Affiliates and Sublicensees will inure to the benefit of such Lead Commercialization Party. Each non-Lead Commercialization Party, on behalf of itself and its Affiliates, will assign to the Lead Commercialization Party or its relevant Affiliate all right, title and interest in and to such Shared Product Trademarks and goodwill in the relevant jurisdiction. The non-Lead Commercialization Party will not contest, oppose or challenge the Lead Commercialization Party's ownership of such Shared Product Trademarks in the relevant jurisdiction. The Lead Commercialization Party will own rights to any Internet domain names incorporating any Trademark for the Shared Product, or any variation or part of any such Trademark, as its URL address or any part of such address in the applicable jurisdiction. The Lead Commercialization Party will use Commercially Reasonable Efforts to register, maintain and enforce the Trademarks for the Shared Product in the relevant jurisdiction.

ARTICLE 11
TERM; TERMINATION

11.1 Term. The term of the Joint Development & Commercialization Agreement will commence on the execution of the Joint Development & Commercialization Agreement and continue in full force and effect until there is no longer a Global Development Plan or Commercialization Plan contemplating Development or Commercialization of a Shared Product in the Territory, unless earlier terminated as provided below.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11.2 Termination Generally. The provisions of Sections 11.2.1, 11.2.3, 11.2.4 and 11.2.5 of the Agreement will apply to the Joint Development & Commercialization Agreement, *mutatis mutandis.*

11.3 Alternative Remedies. The alternative remedy provisions of Section 11.3 of the Agreement will not apply to Hemoglobinopathy Targets or [***] or to the Joint Development & Commercialization Agreement.

11.4 Opt-Out. After [***] for a Shared Product directed to a particular Collaboration Target, either Party may opt out of the Joint Development & Commercialization Agreement for all Shared Products directed to such Collaboration Target upon [***] notice to the other Party ("**Opt-Out**"). The other Party shall pay such opting out Party royalties ("**Opt-Out Royalties**") in accordance with this Section 11.4 and the terms of Sections 7.5.2, 7.5.3, 7.5.4 and 7.5.5 of the Strategic Collaboration Option and License Agreement shall apply to such royalties, *mutatis mutandis.* The applicable royalty rates shall be determined in accordance with the table set forth below based on the timing of the Opt-out Notice. Upon the other Party's receipt of such notice, all rights and obligations under the Joint Development & Commercialization Agreement with respect to Shared Products directed to such Collaboration Target shall terminate. If the opting out Party is CRISPR, such Shared Product(s) shall be deemed Product(s) directed to a Collaboration Target other than a Hemoglobinopathy Target [***] under the Strategic Collaboration, Option and License Agreement, and the terms and conditions of such agreement shall apply with respect to all Products directed to the opted out Collaboration Target; provided, that in lieu of the royalty rates payable under Section 7.5.1 of such agreement Vertex shall pay royalties at the rates set forth in this Section 11.4. If the opting out Party is Vertex, the Parties shall negotiate in good faith a termination agreement for all Products directed to such opted out Collaboration Target, including, without limitation, reasonable diligence obligations and obligations of CRISPR for sharing of information regarding such Products with Vertex, which obligations will be substantially similar to the obligations imposed by Vertex under the Joint Development & Commercialization Agreement. For the avoidance of doubt, the allocation of Net Profits and Net Loss pursuant to Section 7.1 shall terminate upon the Opt-Out.

Timing of Opt Out	Net Sales (in Dollars) for such Shared Products in the Territory	Opt-Out Royalty Rates as a Percentage (%) of Net Sales of such Shared Products
[***]	[***]	[***]
	[***]	[***]
	[***]	[***]
	[***]	[***]
[***]	[***]	[***]
	[***]	[***]
	[***]	[***]
	[***]	[***]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE G

ARTICLE 12
INDEMNITY

The Joint Development & Commercialization Agreement will include commercially reasonable indemnity provisions, which will include (but not be limited to) an obligation for each Party to indemnify the other Party from, against and in respect of any and all Liability incurred or suffered by the other Party to the extent resulting from: (a) any breach of, or inaccuracy in, any representation or warranty made by the indemnifying Party, or any breach or violation by the indemnifying Party of any covenant or agreement in the Joint Development & Commercialization Agreement; or (b) the negligence or intentional misconduct of, or violation of Applicable Law (including off-label promotion) by, the indemnifying Party, any of its Affiliates or Sublicensees, or any of their respective directors, officers, employees and agents, in performing its obligations or exercising its rights under the Joint Development & Commercialization Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE G

Schedule H

CRISPR In-License Agreements

- License Agreement of April 15, 2014 by and between Emmanuelle Marie Charpentier and Crispr Therapeutics AG
- License Agreement of April 15, 2014 by and between Emmanuelle Marie Charpentier and Tracr Hematology Ltd
- License Agreement of November 23, 2014 by and between Childrens Medical Center Corporation and Tracr Hematology Ltd

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE H

Schedule I

Baseball Arbitration Procedures

Selection of Baseball Expert and Submission of Positions. The Parties will select and agree upon a mutually acceptable independent Third Party expert who is neutral, disinterested and impartial, and has the experience specified in Schedule G for the applicable dispute (the "**Baseball Expert**"). If the Parties are unable to mutually agree upon a Baseball Expert within [***] following the delivery of the request for Baseball Arbitration, then upon request by either Party, the Baseball Expert will be an arbitrator appointed by Judicial and Mediation Services ("**JAMS**"), which arbitrator need not have the above-described experience. Once the Baseball Expert has been selected, each Party will within [***] following selection of the Baseball Expert provide the Baseball Expert and the other Party with a written report setting forth its position with respect to the substance of the dispute and may submit a revised or updated report and position to the Baseball Expert within [***] of receiving the other Party's report. If so requested by the Baseball Expert, each Party will make oral submissions to the Baseball Expert based on such Party's written report, and each Party will have the right to be present during any such oral submissions.

JAMS Supervision. In the event the Baseball Expert is a JAMS arbitrator selected by JAMS as provided in this Schedule I, the matter will be conducted as a binding arbitration in accordance with JAMS procedures, as modified by this Schedule I (including that the arbitrator will adopt as his or her decision the position of one Party or the other, as described below). In such event, the arbitrator may retain a Third Party expert with the same experience specified in Schedule F for the Baseball Expert to assist in rendering such decision, and the expenses of any such expert will be shared by the Parties as costs of the arbitration as provided in this Schedule I.

Determination by the Baseball Expert. The Baseball Expert will, no later than [***] after the last submission of the written reports and, if any, oral submissions, select one of the Party's positions as his or her final decision, and will not have the authority to modify either Party's position or render any substantive decision other than to so select the position of either Party as set forth in their respective written report (as initially submitted, or as revised in accordance with this Schedule I, as applicable). The decision of the Baseball Expert will be the sole, exclusive and binding remedy between them regarding the dispute submitted to such Baseball Expert.

Location; Costs. Unless otherwise mutually agreed upon by the Parties, the in-person portion (if any) of such proceedings will be conducted in Boston, Massachusetts. [***].

Timetable for Completion in [***]. The Parties will use, and will direct the Baseball Expert to use, commercially reasonable efforts to resolve a dispute within [***] after the selection of the Baseball Expert, or if resolution within [***] is not reasonably achievable, as determined by the Baseball Expert, then as soon thereafter as is reasonably practicable.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule J

Identified Third Party IP

U.S. Patent No.	U.S. Patent Application No.	Filing Data
U.S. 8,697,359	14/054,414	Oct. 15, 2013
U.S 8,771,945	14/183,429	Feb. 18, 2014
U.S. 8,795,965	14/183,486	Feb. 18, 2014
U.S. 8,865,406	14/222,930	Mar. 24, 2014
U.S. 8,906,616	14/290,575	May 29, 2014
U.S. 8,895,308	14/293,498	Jun. 02, 2014
U.S. 8,945,839	14/256,912	Apr. 18, 2014
U.S. 8,889,356	14/183,471	Feb. 18, 2014
U.S. 8,932,814	14/258,458	Apr. 22, 2014
U.S. 8,871,445	14/259,420	Apr. 23, 2014

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule K

Patent Costs

	Prior to Option Exercise	After Option Exercise
CRISPR Platform Technology Patents	[***]	[***]
CRISPR Background Patents	[***]	[***]
CRISPR Program Patent	[***]	[***]
[***] Patents	[***]	[***]
[***] Patents	[***]	[***]
[***] Joint Program Patents	[***]	[***]
Other Joint Program Patent	[***]	[***]
[***] Joint Program Patents	[***]	[***]

* Either Party may decline to pay its share of costs for Prosecuting and Maintaining any Other Joint Program Patents in a particular country or particular countries, in which case, the declining Party will, and will cause its Affiliates to, assign to the other Party (or, if such assignment is not possible, grant a fully-paid exclusive license in) all of their rights, titles and interests in and to such Other Joint Program Patents.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Schedule L

CRISPR Disclosures

9.2.2

See 9.2.9 regarding [***] (as defined in 9.2.9).

9.2.5.

See 9.2.9 regarding [***].

9.2.6.

See 9.2.9 regarding [***].

9.2.8.

See 9.2.9 regarding [***]; for the cases listed in Section A, CRISPR is a licensee.

9.2.9.

CRISPR Platform Technology Patents

A. CRISPR Platform Technology Patents Licensed from Emmanuelle Charpentier

Foundational patent applications related to Crispr-Cas9 gene editing technologies licensed to CRISPR by Emmanuelle Charpentier:

Serial #	*Filing Date*	*Country/Jurisdiction*
61/652,086	*25 May 2012*	*United States*
61/716,256	*19 Oct 2012*	*United States*
61/757,640	*28 Jan 2013*	*United States*
61/765,576	*15 Feb 2013*	*United States*
13/842,859	*15 Mar 2013*	*United States*
14/403,475	*14 Nov 2014*	*United States*

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

14/685,502	*13 Apr 2015*	*United States*
14/685,504	*13 Apr 2015*	*United States*
14/685,513	*13 Apr 2015*	*United States*
14/685,514	*13 Apr 2015*	*United States*
14/685,516	*13 Apr 2015*	*United States*
PCT/US2013/032589	*15 Mar 2013*	*(International)*
140780	*15 Mar 2013*	*Algeria*
2013266968	*15 Mar 2013*	*Australia*
BR1120140299441-0	*15 Mar 2013*	*Brazil*
2872241	*15 Mar 2013*	*Canada*
2014-03208	*15 Mar 2013*	*Chile*
2013800389206	*15 Mar 2013*	*China*
14-259531	*15 Mar 2013*	*Colombia*
014-0538	*15 Mar 2013*	*Costa Rica*
IEPI-2014-28704	*15 Mar 2013*	*Ecuador*
PCT1887/2014	*15 Mar 2013*	*Egypt*
201401319	*15 Mar 2013*	*Eurasia*
13793997.1	*15 Mar 2013*	*European Pat. Office*
13674/01-14	*15 Mar 2013*	*Georgia*
1420270.9	*15 Mar 2013*	*Great Britain / UK*
2995/KOLNP/2014	*15 Mar 2013*	*India*
P00201407783	*15 Mar 2013*	*Indonesia*
235461	*15 Mar 2013*	*Israel*
2015514015	*15 Mar 2013*	*Japan*

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE L

KE/P/2014/002178	*15 Mar 2013*	*Kenya*
10-2014-7036096	*15 Mar 2013*	*Korea, South*
4959/2014	*15 Mar 2013*	*Libya*
37663	*15 Mar 2013*	*Morocco*
MX/a/2014/014477	*15 Mar 2013*	*Mexico*
PI 2014003102	*15 Mar 2013*	*Malaysia*
701326	*15 Mar 2013*	*New Zealand*
OM/P/2014/00268	*15 Mar 2013*	*Oman*
90441-01	*15 Mar 2013*	*Panama*
002211-2014/DIN	*15 Mar 2013*	*Peru*
1-2014-502574	*15 Mar 2013*	*Philippines*
QA/201411/00400	*15 Mar 2013*	*Qatar*
11201407702X	*15 Mar 2013*	*Singapore*
2014/07881	*15 Mar 2013*	*South Africa*
2014120156	*15 Mar 2013*	*Syria*
1401007063	*15 Mar 2013*	*Thailand*
2014/0493	*15 Mar 2013*	*Tunisia*
a201413835	*15 Mar 2013*	*Ukraine*
P1296/14	*15 Mar 2013*	*United Arab Emirates*
IAP20140559	*15 Mar 2013*	*Uzbekistan*
1-2014-04335	*15 Mar 2013*	*Vietnam*

The named applicant co-owners of the foregoing patent applications are Dr. Emmanuelle Charpentier, the Regents of the University of California and the University of Vienna.

Emmanuelle Charpentier has licensed her rights in the inventions to CRISPR AG and TRACR Hematology Ltd. for the commercialisation of therapeutic products; and has retained the non-transferable right, without the right to license or sublicense, to use the inventions for her own research purposes and in research collaborations.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE L

[***].

[***].

B. CRISPR Platform Technology Patents Owned by the Company

The following cases represent additional CRISPR Platform Technology Patents related to various improvements and uses of Crispr-Cas9 gene editing, and are owned by CRISPR.

61/905,835	*18 Nov 2013*	*United States*
PCT/EP2014/074813	*17 Nov 2014*	*International*
62/119,754	*23 Feb 2015*	*United States*
62/119,774	*23 Feb 2015*	*United States*

CRISPR Background Technology Patents

The Patents listed on the attached Appendix 1 of Schedule I are CRISPR Background Technology Patents related to [***].

9.2.12

The Charpentier-licensed IP identified in 9.2.9. has been the subject of Third Party observations filed in the following patent offices: European Patent Office, the UK Intellectual Property Office, the US Patent and Trademark Office and the World Intellectual Property Office ("Third Party Observations").

The Broad Institute is the applicant or owner of a series of competing cases claiming Crispr-Cas9 gene editing (which cases generally claim priority to one or more provisional applications identifying at least Feng Zhang as an inventor, including without limitation U.S. provisional patent application 61/736,527, dated December 12, 2012, as well as foreign counterparts thereof). The Broad Institute has filed Information Disclosure Statements in its various U.S. cases attacking the foundational IP, and it and/or related entities are considered to be among the parties filing third party observations.

The Charpentier-UC applicants have filed a Suggestion of Interference Pursuant to 37 C.F.R. § 41.202 with the U.S. Patent & Trademark Office in connection with numerous U.S. patents issued to the Broad Institute (the "Potential Interference"). The Suggestion of Interference was filed in U.S. Serial No. 13/842,859 on April 13, 2015.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE L

The patent applications listed below and counterparts thereof generally include claims to Crispr-Cas9 gene editing with priority applications filed in 2012, and there have since been numerous additional patent applications claiming variations of Crispr-Cas gene editing and various uses of Crispr-Cas gene editing for the development of potential products filed after 2012 that are readily identifiable by searching patent databases for Crispr-Cas gene editing, which Third Party applicants, applications or patents (individually and collectively "Third Party IP") could become involved in challenges related to the Licensed Technology and/or to products to be developed pursuant to such technology (together with the Third Party Observations and the Potential Interference referred to in the preceding paragraphs being individually and collectively the "Third Party Matters"):

- *Vilnius PCT/LT2013/000006filed 15 Mar 2013 (WO 2013/141680) and PCT/US2013/033106filed 20 Mar 2013 (WO 2013/142578)*
  First priority filing 20 Mar 2012
- *Toolgen PCT/KR2013/009488 filed 23 Oct 2013 (WO/2014/065596)*
  First priority filing 23 Oct 2012
- *Sigma PCT/US2013/073307filed 05 Dec 2013 (WO/2014/089290)*
  First priority filing 6 Dec 2012
- *Broad PCT/US2013/074743 (WO/2014/093661) and other PCT applications*
  First priority filing 12 Dec 2012
- *Harvard PCT/US2013/075317 (WO/2014/099744) and other PCT applications*
  First priority filing 17 Dec 2012

9.2.14.

See 9.2.9, in connection with which it is noted that CRISPR is not an owner of the Platform Technology Patents listed in Part A, nor of the Background Patents listed.

9.2.15

See 9.2.9, in connection with which it is noted that Charpentier is a co-owner of numerous patent applications as noted, and other co-owners and their licensees and certain governmental and non-profit entities also have rights in such cases.

9.2.16

See 9.2.9, in connection with which it is noted that Charpentier is a co-owner (and co-developer) of know-how related to the technologies described in the patent applications as noted, and therefore other co-owners and their licensees and certain non-profit entities have also had access to such know-how, as well as patent applications.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE L

9.2.17

See 9.2.9, in connection with which it is noted that Charpentier is a co-owner of numerous patent applications as noted with the University of California, which has indicated that the invention was made with government support under Grant No. GM081879 awarded by the National Institutes of Health, and that the U.S. government has certain rights in the invention; [***].

9.2.18

See 9.2.12 regarding Third Party IP (as defined in 9.1.12).

9.2.19

See 9.2.12 regarding Third Party Matters (as defined in 9.1.12)

9.2.20

See 9.2.12 regarding Third Party Matters.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE L

Appendix 1
Patent Rights

[***]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE L

Schedule M

Press Release

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE L

Vertex and CRISPR Therapeutics Establish Collaboration to Use CRISPR-Cas9 Gene Editing Technology to Discover and Develop New Treatments for Genetic Diseases

-Gene editing technology to be used to discover treatments to address the mutations and genes known to cause and contribute to cystic fibrosis-

-Vertex and CRISPR to utilize gene editing approach to discover treatments for genetic diseases, including sickle cell disease-

-Companies establish four-year research collaboration; CRISPR to receive $105 million up- front payment, of which $30 million is an equity investment, with potential for additional milestones and royalty payments-

BOSTON AND CAMBRIDGE, MASS - October XX, 2015 - Vertex Pharmaceuticals Incorporated (Nasdaq: VRTX) and CRISPR Therapeutics today announced that the two companies have entered into a strategic research collaboration focused on the use of CRISPR's gene editing technology, known as CRISPR-Cas9, to discover and develop potential new treatments aimed at the underlying genetic causes of human disease. The collaboration will evaluate the use of CRISPR-Cas9 across multiple diseases where targets have been validated through human genetics. Vertex and CRISPR will focus their initial gene editing research on discovering treatments to address the mutations and genes known to cause and contribute to cystic fibrosis and sickle cell disease. Vertex and CRISPR will also evaluate a specified number of other genetic targets as part of the collaboration. Vertex will have exclusive rights to license up to six new CRISPR-Cas9-based treatments that emerge from the collaboration. As part of the collaboration, Vertex made an up-front commitment of $105 million to CRISPR, including $75 million in cash and a $30 million equity investment. CRISPR is also eligible to receive future development, regulatory and sales milestones and royalty payments on future sales.

"CRISPR-Cas9 is an important scientific and technological breakthrough that holds significant promise for the future discovery of potentially transformative treatments for many genetic diseases," said David Altshuler, M.D., Ph.D., Vertex's Executive Vice President, Global Research and Chief Scientific Officer. "As a company founded on innovative science, we're excited to begin this collaboration with CRISPR, as it puts us at the forefront of what we believe may be a fundamental change in the future treatment of disease — using gene editing technologies to address the underlying genetic causes of many diseases."

"Vertex has a track record of developing innovative medicines for cystic fibrosis and other serious diseases, making them a great partner to accelerate the therapeutic promise of gene editing," said Rodger Novak, M.D., Chief Executive Officer of CRISPR Therapeutics. "For CRISPR, this collaboration validates the potential for gene editing in human therapeutics and provides important financial support for continued investment in our platform and proprietary pipeline of programs."

About the Collaboration

Under the terms of the collaboration, Vertex and CRISPR will jointly use the CRISPR-Cas9 technology to discover and develop potential new treatments that correct defects in specific gene targets known to cause or contribute to particular diseases. The initial focus of the collaboration

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE M

will be on the use of CRISPR-Cas9 to potentially correct the mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene known to result in the defective protein that causes CF and to edit other genes that contribute to the disease. Additionally, the companies will seek to discover and develop gene-based treatments for hemoglobinopathies, including sickle cell disease. Additional discovery efforts focused on a specified number of other genetic targets will also be conducted under the collaboration. Discovery activities will be conducted primarily by CRISPR, and the related expenses will be fully funded by Vertex. Vertex has the option to an exclusive license for up to six gene-based treatments that emerge from the four-year research collaboration. Vertex will fund 100 percent of the development expenses of licensed treatments. For each of the up to six treatments in-licensed for development, Vertex will pay future development, regulatory and sales milestones of up to $420 million as well as royalty payments on future sales.

Vertex and CRISPR will collaborate on the research, development and commercialization of treatments for hemoglobinopathies that emerge from the collaboration. Specifically for hemoglobinopathies, including treatments for sickle cell disease, Vertex and CRISPR will equally share all research and development costs and sales, with CRISPR Therapeutics leading commercialization efforts in the U.S. For all other diseases, Vertex will lead all development and global commercialization activities.

Vertex will pay CRISPR $75 million in cash as part of its up-front commitment. Vertex will also provide a $30 million investment in CRISPR, which is a private company. The investment will provide Vertex with an ownership stake in CRISPR. The collaboration also provides Vertex with an observer seat on the CRISPR Board of Directors, which will be filled by Dr. Altshuler.

About Gene Editing with CRISPR-Cas9

"**CRISPR**" refers to Clustered Regularly Interspaced Short Palindromic Repeats that occur in the genome of certain bacteria, from which the system was discovered. Cas9 is a CRISPR- associated endonuclease (an enzyme) known to act as the "**molecular scissors**" that cut and edit, or correct, disease-associated DNA in a cell. A guide RNA directs the Cas9 molecular scissors to the exact site of the disease-associated mutation. Once the molecular scissors make a cut in the DNA, additional cellular mechanisms and exogenously added DNA will use the cell's own machinery and other elements to specifically 'repair' the DNA. This technology may offer the ability to directly modify or correct the underlying disease-associated changes in the human genome for the potential treatment of a large number of both rare and common diseases.

Emmanuelle Charpentier, Ph.D., one of CRISPR Therapeutics' scientific founders, co-invented the CRISPR-Cas9 technology and is the recipient of multiple prestigious awards in recognition of the potential contribution that the CRISPR-Cas9 technology may have on global health. The other scientific co-founders of CRISPR are Craig Mello, Ph.D., Chad Cowan, Ph.D., Matthew Porteus, M.D., Ph.D., and Daniel Anderson, Ph.D.

About Vertex

Vertex is a global biotechnology company that aims to discover, develop and commercialize innovative medicines so people with serious diseases can lead better lives. In addition to our clinical development programs focused on cystic fibrosis, Vertex has more than a dozen ongoing research programs aimed at other serious and life-threatening diseases.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE M

Founded in 1989 in Cambridge, Mass., Vertex today has research and development sites and commercial offices in the United States, Europe, Canada and Australia. For five years in a row, *Science* magazine has named Vertex one of its Top Employers in the life sciences. For additional information and the latest updates from the company, please visit www.vrtx.com.

About CRISPR Therapeutics

The mission of CRISPR Therapeutics is to develop transformative gene-based medicines for patients with serious diseases. Our therapeutic approach aims to cure diseases at the molecular level using the breakthrough gene editing technology called CRISPR-Cas9. With our multi- disciplinary team of world-renowned academics, drug developers and clinicians, we are uniquely positioned to translate CRISPR-Cas9 technology into human therapeutics. We have licensed the foundational CRISPR-Cas9 patent estate for human therapeutic use from our scientific founder, Dr. Emmanuelle Charpentier. We are headquartered in Basel, Switzerland, our R&D operations are in Cambridge, Massachusetts and we have corporate offices in London, United Kingdom. www.crisprtx.com

Special Note Regarding Forward-looking Statements

This press release contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, including, without limitation, Dr. Altshuler's statements in the second paragraph of the press release, Dr. Novak's statements in the third paragraph of the press release and the information provided regarding the future development of treatments for genetic diseases using the CRISPR-Cas9 technology. While Vertex believes the forward-looking statements contained in this press release are accurate, these forward-looking statements represent the company's beliefs only as of the date of this press release and there are a number of factors that could cause actual events or results to differ materially from those indicated by such forward-looking statements. Those risks and uncertainties include, among other things, that data may not support further development of the gene-based treatments subject to the collaboration due to safety, efficacy or other reasons, and other risks listed under Risk Factors in Vertex's annual report and quarterly reports filed with the Securities and Exchange Commission and available through the company's website at www.vrtx.com. Vertex disclaims any obligation to update the information contained in this press release as new information becomes available.

(VRTX-GEN)

Vertex Pharmaceuticals Incorporated

Investors:

Michael Partridge, 617-341-6108 or
Kelly Lewis, 617-961-7530 or
Eric Rojas, 617-961-7205

or

Media: mediainfo@vrtx.com
Zach Barber: 617-341-6992

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE M

CRISPR MEDIA CONTACTS:

MacDougall Biomedical Communications
Kari Watson in US - kwatson@macbiocom.com +1 (781) 235-3060
Anca Alexandra in Europe - aalexandru@macbiocom.com +49 (89) 2424-3494

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SCHEDULE M

SPECIFIC TERMS IN THIS EXHIBIT HAVE BEEN REDACTED BECAUSE CONFIDENTIAL TREATMENT FOR THOSE TERMS HAS BEEN REQUESTED. THESE REDACTED TERMS HAVE BEEN MARKED IN THIS EXHIBIT WITH THREE ASTERISKS [***]. AN UNREDACTED VERSION OF THIS EXHIBIT HAS BEEN SEPARATELY FILED WITH THE SECURITIES AND EXCHANGE COMMISSION.

Exhibit 10.5

LICENSE AGREEMENT

THIS LICENSE AGREEMENT ("***Agreement***") is entered into and effective as of April 15, 2014 (the "***Effective Date***"), by and between **EMMANUELLE MARIE CHARPENTIER**, an individual residing at Böcklerstrasse 18, 38102 Braunschweig, Germany ("***EC***"), and **CRISPR THERAPEUTICS AG**, a company organized under the laws of Switzerland having a principal place of business at Aeschenvorstadt 36, CH-4051 Basel, Switzerland ("***CRISPR***").

BACKGROUND

WHEREAS, EC and CRISPR are parties to that certain Option Agreement dated October 28, 2013 (the "***Option Agreement***"), pursuant to which EC granted CRISPR an exclusive option to obtain an exclusive license or other exclusive rights under EC's joint ownership interest in and to the Technology (defined below);

WHEREAS, CRISPR desires to obtain from EC, and EC desires to grant to CRISPR, an exclusive license under EC's joint ownership interest in and to the Technology (defined below) to develop and commercialize products for the treatment or prevention of human diseases other than hemoglobinopathies, on the terms and subject to the conditions set forth herein.

NOW, THEREFORE, in consideration of the premises and the mutual promises and covenants contained herein, the receipt and sufficiency of which are hereby acknowledged, EC and CRISPR hereby agree as follows:

1. DEFINITIONS

1.1 "**Affiliate**" shall mean:

(a) any business entity which controls, is controlled by, or is under common control with CRISPR; and for this purpose, a business entity shall be deemed to "control" another business entity, if it owns, directly or indirectly, more than 50% of the outstanding voting securities, capital stock, or other comparable equity or ownership interest of such business entity having the power to vote on or direct the affairs of such business entity; or

(b) any business entity that CRISPR, at CRISPR's sole option and upon written notice to EC, designates as an "Affiliate" for purposes of this Agreement, provided that, as of the date of such designation, EC is the holder of […***…] percent or more of the equity securities of such business entity on a fully-diluted and as-converted basis.

1.2 "**Affiliated Sublicensee**" shall mean any Affiliate to which CRISPR or its Affiliate directly or indirectly (*i.e.*, through multiple tiers of sublicense) grants a sublicense under any or all of the Patent Rights, for purposes of clarification, if, at any time after the grant of a sublicense to an entity that is an Affiliate at the lime of such grant, such entity ceases to be an Affiliate within the meaning of Section 1.1(a) or Section 1.1(b) (as applicable), such entity shall nevertheless continue to be considered an "Affiliated Sublicensee" (and shall not be considered a "Third Party Sublicensee") for purposes of this Agreement, including, without limitation, Article 3 hereof.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.3 "**Companion Diagnostic**" shall mean any companion diagnostic tool and/or diagnostic assay developed and used to (i) identify patients who are most likely to benefit from a Therapeutic Product, (ii) identify patients likely to be at increased risk for serious adverse reactions as a result of treatment with a Therapeutic Product, and/or (iii) monitor a patient's response to a Therapeutic Product for the purpose of adjusting treatment (*e.g.*, schedule, dose, discontinuation) to achieve improved safety or effectiveness.

1.4 "**Confidential Information**" shall have the meaning provided in Section 7.1.

1.5 "**Covered Animal**" shall mean an animal (including a microorganism), the genome of which (i) has been altered using a Covered Product or Covered Method or (ii) incorporates a Covered Product.

1.6 "**Covered Animal-Derived Product**" shall mean any tissue or organ that, in each case, is extracted or harvested from a Covered Animal but that is not itself a Covered Product. Any monoclonal antibody or other protein molecule that is first created in a Covered Animal but that is not itself a Covered Product shall not be considered a Covered Animal-Derived Product.

1.7 "**Covered Method**" shall mean any process or method, the use or practice of which in a country would, in the absence of the license granted under this Agreement (or a sublicense granted thereunder, as applicable), infringe a Valid Claim of the Patent Rights in such country.

1.8 "**Covered Product**" shall mean any product, the manufacture, use, sale or importation of which is covered by the Patent Rights, or which is based on, uses or incorporates any Technology.

1.9 "**CRISPR Field**" shall mean researching, developing, making, using or selling: (a) Therapeutic Products for the treatment or prevention of any human disease, disorder or condition, but excluding any Tracr Indication; and (b) Diagnostic Products for use with such Therapeutic Products.

1.10 "**CRISPR Improvement**" shall mean any improvement to the Invention made solely by or on behalf of CRISPR, and owned solely by CRISPR: (a) that is useful in the Tracr Field (whether or not also useful in the CRISPR field); and (b) the practice of which either (i) is within the scope of the claims of the Patent Rights or (ii) requires the practice of the Invention.

1.11 "**CRISPR Improvement IP**" shall have the meaning provided in Section 2.9.

1.12 "**CRISPR Improvement License**" shall have the meaning provided in Section 2.9.

1.13 "**CRISPR Patent Rights**" shall mean EC's joint ownership interest in Patent Rights (or, as applicable, those claims of Patent Rights) that claim inventions having applicability or utility exclusively in the […***…].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.14 "**Diagnostic Product**" shall mean a Companion Diagnostic for use with a Therapeutic Product, which Companion Diagnostic contains or incorporates a Covered Product or a Covered Animal-Derived Product or uses a Covered Method.

1.15 "**ERS**" shall mean ERS Genomics Limited, a company organized under the law s of Ireland having a principal place of business at 88 Harcourt Street, Dublin 2, Ireland.

1.16 "**ERS Field**" shall mean all fields of use except the […***…].

1.17 "**ERS License**" shall have the meaning provided in Section 5.2(a)(i).

1.18 "**ERS Patent Rights**" shall mean EC's joint ownership interest in Patent Rights (or, as applicable, those claims of Patent Rights) that claim inventions having applicability or utility exclusively in […***…].

1.19 "**Invention**" shall mean the invention entitled "*Methods and Compositions for RNA-Directed Target DNA Modification and for RNA-Directed Modulation of Transcription*" as described in the Patent Application, including all improvements thereto that arc disclosed in the Patent Application.

1.20 "**Joint Owners**" means Regents, Vienna and any other person other than EC who is a proprietor of the Patent Rights.

1.21 "**Know-How**" shall mean the additional information and materials listed in **Exhibit A** […***…].

1.22 "**Major Market**" shall mean any of the following: […***…].

1.23 "**Materials**" shall mean biological materials within the Know-How that are […***…].

1.24 "**NDA/BLA**" shall mean: (a) in the United States, a Biologies License Application (as more fully defined in 21 CFR § 601.2) or a New Drug Application (as more fully defined in 21 CFR § 314.5 *et seq.*), as applicable, tiled with the FDA, or any successor application thereto; (b) in the European Union, a Marketing Approval Authorization filed with the EMA, or any successor application thereto; or (c) in any other regulatory jurisdiction, the equivalent application for approval to market a drug filed with the governing regulatory authority in such jurisdiction.

1.25 "**Net Sales**" shall mean the gross amounts invoiced by CRISPR and its Sublicensees to Third Parties (other than Third Party Sublicensees) from sales of Therapeutic Products or Diagnostic Products, less the following items, to the extent allocable to such Therapeutic Products or Diagnostic Products and either included in the invoice, or otherwise actually granted, allowed, taken or incurred (if not previously deducted from the amount invoiced): […***…]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

[…***…].

[…***…].

1.26 "**Overlapping Patent Rights**" shall mean EC's joint ownership interest in Patent Rights (or, as applicable, those claims of Patent Rights) that claim inventions having applicability or utility […***…].

1.27 "**Patent Application**" shall mean U.S. Patent Application No. 13/842,859, filed on March 15, 2013.

1.28 "**Patent Rights**" shall mean the Patent Application and other patent applications and patents listed in **Exhibit B** attached to this Agreement; any and all patent applications that claim priority to any of the foregoing patents or patent applications listed in **Exhibit B** hereto, including, without limitation, continuations, continuations-in-part (but only to the extent the claims of any such continuation-in-part are specifically directed to subject matter disclosed in the specifications in, and entitled to the priority date of, the parent application), divisional applications and substitute applications; any and all patents issuing on any of the foregoing patent applications, including registrations, renewals, reexaminations, reissues, extensions, term restorations and supplementary protection certificates; and any and all foreign counterparts of any of the foregoing; in each case, whether now existing or hereafter filed or issued.

1.29 "**Phase I Trial**" shall mean a human clinical trial that would satisfy the requirements for a Phase I study as defined in 21 CFR § 312.21(a) (or its successor regulation), regardless of where such trial is conducted.

1.30 "**Phase 2 Trial**" shall mean a human clinical trial that would satisfy the requirements for a Phase 2 study as defined in 21 CFR § 3 12.21(b) (or its successor regulation), regardless of w here such trial is conducted.

1.31 "**Phase 3 Trial**" shall mean a human clinical trial that would satisfy the requirements for a Phase 3 study as defined in 21 CFR § 312.21(c) (or its successor regulation), regardless of where such trial is conducted.

1.32 "**Regents**" shall mean The Regents of the University of California, a California corporation having its corporate offices located at 1111 Franklin Street, Oakland, California 94607-5200, acting through The Office of Technology Licensing of the University of California, Berkeley, located at 2150 Shattuck Avenue, Suite 510, Berkeley, CA 94704-1347.

1.33 "**Revenue-Sharing Payments**" shall have the meaning provided in Section 4.1.

1.34 "**Services Relationship**" shall have the meaning provided in Section 3.2(a).

1.35 "**Sublicensee**" shall mean an Affiliated Sublicensee and/or Third Party Sublicensee, as applicable.

1.36 "**Sublicensing Revenues**" shall mean all amounts received by CRISPR or any of its Affiliated Sublicensees from any Third Party Sublicensee in consideration of the grant by

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

CRISPR or its Affiliated Sublicensee of a Sublicense under any or all of the Patent Rights, including, […***…], and any other payments with respect to such sublicense; but excluding:

(a) […***…]

(b) […***…]

(c) […***…]

(d) […***…]

(e) […***…].

[…***…].

1.37 "**Technology**" shall mean the Invention, Patent Rights and Know-How.

1.38 "**Term**" shall have the meaning provided in Section 8.1.

1.39 "**Therapeutic Product**" shall mean […***…].

1.40 "**Third Party**" shall mean any entity other than EC, CRISPR and any Affiliate of CRISPR.

1.41 "**Third Party Sublicensee**" shall mean any Third Party to which CRISPR or its Affiliated Sublicensee has directly or indirectly (*i.e.*, through multiple tiers of sublicense) granted a sublicense under any or all of the Patent Rights. For clarification, a Third Party service provider that has the right to make, have made, use or sell Therapeutic Products or Diagnostic Products solely on behalf of CRISPR or its Affiliated Sublicensee and not for its own account shall not be considered a Third Party Sublicensee.

1.42 "**Tracr**" shall mean Tracr Hematology Ltd. a UK limited company having its registered office at 90 Fetter Lane, London EC1A UP. United Kingdom.

1.43 "**Tracr Field**" shall mean researching, developing, making, using or selling: (a) Therapeutic Products for any Tracr Indication; and (b) Diagnostic Products for use with such Therapeutic Products.

1.44 "**Tracr Improvement IP**" shall have the meaning provided in the Tracr License,

1.45 "**Tracr Indication**" shall mean the treatment or prevention of any hemoglobinopathy in humans, including, without limitation, sickle cell disease and thalassemia.

1.46 "**Tracr License**" shall have the meaning provided in Section 5.2(a)(ii).

1.47 "**Valid Claim**" shall mean a claim contained in: (a) an issued and unexpired patent which has not been held unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through abandonment, reissue, disclaimer or otherwise; or (b) a patent application that has not been irretrievably cancelled, withdrawn or abandoned and that has been pending for less than […***…].

1.48 "**Vienna**" shall mean the University of Vienna, having a principal place of business at Universitatsring 1, 1010, Vienna, Austria.

2. LICENSE

2.1 Grant. Subject to the terms and conditions of this Agreement, including without limitation the provisions of Section 2.2, EC hereby grants to CRISPR:

(a) an exclusive (even as to EC, except as set forth in Section 2.8), worldwide, royalty-bearing license, including the right to sublicense through multiple tiers, tinder F.C's joint ownership interest in and to the Technology, to research, develop, make, have made, use, sell, have sold, offer for sale and import Therapeutic Products in the CRISPR Field and Diagnostic Products for use with such Therapeutic Products:

(b) a non-exclusive, worldwide, royalty-free license, including the right to sublicense through multiple tiers (but only together with the license in Section 2.1(a) above), under EC's joint ownership interest in and to the Technology, to carry out internal pharmaceutical research in relation to products which are not Therapeutic Products; and

(c) an exclusive (even as to EC), worldwide, royalty-free sublicense, including the right to sublicense through multiple tiers, under Tracr Improvement IP which is licensed to EC under the Tracr License, to research, develop, make, have made, use, sell, have sold, offer for sale and import Therapeutic Products in the CRISPR Field and Diagnostic Products for use with such Therapeutic Products but without prejudice to CRISPR's payment obligations in respect of Therapeutic Products and Diagnostic Products under Article 3.

2.2 License Exclusions. For the avoidance of doubt, CRISPR shall not have any license under EC's joint ownership interest in and […***…].

2.3 Acknowledgment of Joint Ownership. CRISPR acknowledges that as at the Effective Date, it has not obtained any right or license under the joint ownership interest of any Joint Owner in and to the Technology and, as such CRISPR's exclusivity under Section 2.1(a) is limited to EC's joint ownership interest and consequently CRISPR does not have the exclusive right to exploit the Technology in the CRISPR Field. CRISPR also acknowledges that EC has not obtained the consent of any Joint Owner in respect of the grant of the licenses under Section 2.1 and that, as such, EC gives no representation or warranty as to the validity, enforceability or effect of the licenses in any country in the Territory .

2.4 Sublicensing. Any and all sublicenses of the license granted to CRISPR under Section 2.1 shall be in writing and shall be subject to, and consistent with, the terms and conditions of this Agreement. CRISPR shall be responsible for the compliance of its Sublicensees with the terms and conditions of this Agreement. Within 30 days after execution, CRISPR shall provide EC with a full and complete copy of each sublicense agreement (provided that CRISPR may redact any confidential information contained therein that is not necessary to ascertain compliance with this Agreement).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.5 Technology Transfer. Promptly following the Effective Date, EC shall disclose to CRISPR (to the extent not previously disclosed) all Know-How available in written, electronic or other recorded form. In addition, during the 12-month period beginning on the Effective Date, EC shall transfer to CRISPR, upon CRISPR's request from time to time, samples of the Materials, subject to availability.

2.6 Diligence; Progress Reports.

(a) CRISPR shall use commercially reasonable efforts and due diligence, itself and/or through one or more Sublicensees, to develop, and to obtain regulatory approval to market, at least one Therapeutic Product in the CRISPR Field, as promptly as is reasonably and commercially feasible. Without limiting the generality of the foregoing, CRISPR, itself and/or through one or more Affiliated Sublicensees, shall:

(i) use commercially reasonable efforts […***…]

(ii) use commercially reasonable efforts to commercially exploit the Technology in the CRISPR Field (including, without limitation, by sublicensing) within […***…] years of the Effective Date; and

(iii) use commercially reasonable efforts to file, or cause to be filed, a U.S. Investigational New Drug application (or the equivalent thereof in another Major Market) for a Therapeutic Product in the CRISPR Field within seven years after the Effective Date; and

(iv) file, or cause to be filed, a U.S. Investigational New Drug application (or the equivalent thereof in another Major Market) for a Therapeutic Product in the CRISPR Field within ten years after the Effective Date.

(b) CRISPR shall keep EC informed as to progress with respect to the development of Therapeutic Products and Diagnostic Products in the CRISPR Field (whether by CRISPR or its Sublicensees), including, without limitation, the conduct of clinical trials, regulatory submissions and approvals, manufacturing arrangements, marketing activities and sublicensing, and shall deliver to EC a written annual report summarizing such progress by […***…] of each year, beginning […***…]. For clarification, CRISPR's reporting obligations under this Section 2.6(b) are in addition to CRISPR's reporting obligations under Section 4.1. The contents of CRISPR's progress reports to EC shall be deemed to be CRISPR's Confidential Information.

2.7 No Implied License. This Agreement confers no license or rights by implication, estoppel, or otherwise under any patent rights of EC other than the Patent Rights regardless of whether such patent rights are dominant or subordinate to the Patent Rights.

2.8 Reservation of Rights. EC reserves the non-transferable right, without the right to license or sublicense, to use the Technology for her own research purposes and in research collaborations with academic or non-profit partners provided such research is not funded in

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

whole or in part by any commercial sponsor except where EC has discussed any commercial funding with CRISPR and CRISPR has confirmed in writing that it does not object to EC pursing the relevant research or research collaboration with the disclosed commercial funding. For clarity, as between EC and CRISPR, and except as expressly set forth in Section 2.1(b), EC retains all rights to the Technology outside of the CRISPR Field.

2.9 CRISPR Improvement License Grant-Back in Tracr Field. Subject to the terms and conditions of this Agreement, CRISPR hereby grants to EC an exclusive (even as to CRISPR), worldwide, royalty-free license, including the right and obligation to sublicense exclusively and solely to Tracr (and which Tracr may further sublicense through multiple tiers of sublicense), under CRISPR's patent and other intellectual property rights in CRISPR Improvements ("***CRISPR Improvement IP***"), to research, develop, make, have made, use, sell, have sold, offer for sale and import Therapeutic Products solely for Tracr Indications and Diagnostic Products for use with such Therapeutic Products ("***CRISPR Improvement License***"). EC shall have the right and the obligation to grant to Tracr (and only to Tracr) an exclusive (even as to EC), worldwide, royalty-free sublicense of the CRISPR Improvement License pursuant to the Tracr License, and shall not have the right to grant any other sublicense under the CRISPR Improvement License or CRISPR Improvement IP or to practice the CRISPR Improvement License or CRISPR Improvement IP herself. For clarity, CRISPR retains the exclusive right to practice and grant licenses under CRISPR Improvements and the CRISPR Improvement IP for all uses other than research, development, manufacture, use, sale, offer for sale and import of Therapeutic Products for Tracr Indications and Diagnostic Products for use with such Therapeutic Products, including, without limitation, all uses in the CRISPR Field. EC shall not acquire any right to prosecute, maintain, enforce and defend the CRISPR Improvement IP.

3. PAYMENTS

3.1 Technology Transfer Fee. Within […***…] of the Effective Date, CRISPR shall pay to EC a non-creditable, non-refundable, one-time technology transfer fee of CHF […***…].

3.2 Services Relationship; License Maintenance Fees.

(a) For so long as any one or more consulting, advisory board, employment or similar services agreements or arrangements is in effect between CRISPR or any of its Affiliated Sublicensees and EC that, either individually or in the aggregate, provide for annual cash compensation to EC of at least CHF […***…] per calendar year, pro-rated on the basis of a 365-day year for any partial calendar year (a "***Services Relationship***"). CRISPR shall have no obligation to pay to EC annual license maintenance fees, except as expressly set forth in Section 3.2(b).

(b) On or before January 1 of each calendar year during the Term, beginning […***…], unless a Services Relationship is in effect between CRISPR and EC as of such date, CRISPR shall pay to EC an annual license maintenance fee of CHF […***…]covering the calendar year beginning on such date. If, during any calendar year for which CRISPR was not obligated to pay an annual license maintenance fee due to the existence of a Services Relationship as of the beginning of such calendar year, any and all Services Relationships

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

terminate, and, as of termination of the last to be terminated of such Service Relationships, the total compensation received or earned by EC during such calendar year under such Services Relationship(s) as of such termination is less than CHF […***…], then, within 30 days after the termination. CRISPR shall pay to EC the difference between CHF […***…] and the total compensation received or earned by EC under such Services Relationship(s) during such calendar year (in addition to paying to EC all earned but unpaid compensation under such Services Relationship(s) for such calendar year).

3.3 Milestone Payments. Within […***…] after the first achievement by CRISPR or a Sublicensee of each of the following milestone events by any Therapeutic Product. CRISPR shall provide written notice to EC of the occurrence of such event. Where the milestone event is achieved by CRISPR, CRISPR shall pay to EC the corresponding milestone payment set forth below. Where the milestone event is achieved by a Sublicensee, CRISPR shall pay to EC the difference between the corresponding payment set forth below and the amount payable by CRISPR to EC in accordance with Section 3.5 below as a result of CRISPR's receipt of any milestone payment from the Sublicensee for the achievement of that milestone event, if the amount payable under Section 3.5 is lower.

Milestone Event	Payment
Initiation of first Phase 1 Trial	CHF [***]
Initiation of first Phase 2 Trial	CHF [***]
Initiation of first Phase 3 Trial	CHF [***]
Approval of first NDA/BLA in first Major Market	CHF [***]

Each of the foregoing milestone payments shall be payable only one time per Therapeutic Product (regardless of the number of times any Therapeutic Product achieves such milestone or the number of indications for which such Therapeutic Product is developed).

3.4 Royalties. CRISPR shall pay to EC a royalty equal to […***…] of Net Sales of Therapeutic Products and Diagnostic Products by CRISPR and its Sublicensees. Only one royalty payment shall be due under this Agreement with respect to a sale of a Therapeutic Product or Diagnostic Product, regardless of the number of Valid Claims covering such Therapeutic Product or Diagnostic Product. Royalties will be payable on a Therapeutic Product-by-Therapeutic Product or Diagnostic Product-by-Diagnostic Product and country-by-country basis from the date of first commercial sale of a Therapeutic Product or Diagnostic Product in a country until the expiration of the last-to-expire Valid Claim of the Patent Rights covering such Therapeutic Product or Diagnostic Product in that country .

3.5 Sharing of Sublicensing Revenues. CRISPR shall pay to EC […***…] of Sublicensing Revenues. Payments under this Section 3.5 with respect to Sublicensing Revenues received under a sublicense agreement with a given Third Party Sublicensee shall be payable until the expiration of the last-to-expire Valid Claim of the Patent Rights in all countries in which the sublicense under such Patent Rights has been granted.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

3.6 Payment by Affiliated Sublicensees. At CRISPR's option, any sublicense agreement between CRISPR and an Affiliated Sublicensee may provide for such Affiliated Sublicensee to pay directly to EC: (a) milestone payments in the amounts specified in Section 3.3 with respect to the achievement of the corresponding milestone events set forth in Section 3.3 by Therapeutic Products developed by or on behalf of such Affiliated Sublicensee; (b) royalties on Net Sales by such Affiliated Sublicensee (and its Sublicensees) of Therapeutic Products and Diagnostic Products at the rate set forth in Section 3.4; and (c) […***…] of the total Sublicensing Revenues received by such Affiliated Sublicensee; in each case, provided that CRISPR shall remain responsible and liable to EC for compliance with CRISPR's obligations under Sections 3.3, 3.4 and 3.5, respectively, with respect to such Affiliated Sublicensee.

3.7 Licenses Under Other EC Technology. The parties acknowledge that CRISPR may, in the future, wish to obtain from EC licenses to one or more other inventions and discoveries (whether or not patentable) made by EC, either solely or with one or more co-inventors, including patent and other intellectual property rights covering such inventions and discoveries (collectively, "***New EC Technology***"). The parties also acknowledge that EC is not under any obligation to grant licenses or any other right, title or interest in or to any New EC Technology to CRISPR but shall consider any request from CRISPR to obtain a license on a case by case basis, […***…]. CRISPR and EC hereby agree that in the event that CRISPR or its Sublicensees develops or commercializes any Therapeutic Product in the CRISPR Field that is also covered by New EC Technology licensed by EC directly to CRISPR under one or more separate license agreements (each, a "***New License Agreement***").

(a) in the case of a Therapeutic Product covered by New EC Technology, […***…] milestone payments shall be due and payable to EC with respect to such Therapeutic Product, which shall be the […***…]; and

(b) only […***…] shall be due and payable to EC with respect to any sale of a Therapeutic Product covered by any New EC Technology, which shall be calculated […***…].

Similarly, if CRISPR or an Affiliated Sublicensee grants any sublicense under both the Technology and the New EC Technology, […***…] shall be due and payable to EC with respect to any item of sublicensing revenues received by CRISPR or an Affiliated Sublicensee for such sublicense, which shall be calculated at the higher of (i) the rate set forth in Section 3.5 and (ii) the rate set forth in the New License Agreement(s).

Notwithstanding the foregoing, CRISPR acknowledges that, to the extent EC is obligated to assign any or all of her rights in or to New EC Technology to a Third Party (*e.g.*, the institution of which she is an employee at the time such New EC Technology is created). EC may not have the right to grant CRISPR a license (or an exclusive license) under such New EC Technology. CRISPR further acknowledges that in such event, if CRISPR wishes to obtain a license under such Third Party assignee's interest in such New EC Technology, the amounts payable by CRISPR to such Third Party assignee would be negotiated between CRISPR and such Third Party assignee and, if such Third Party assignee were willing to grant CRISPR a license, such license would not be subject to the foregoing provisions of this Section 3.7.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4. PAYMENTS; REPORTS; AUDITS

4.1 Payment; Reports. Royalties under Section 3.4 and payments with respect to Sublicensing Revenues under Section 3.5 (collectively, "***Revenue-Sharing Payments***"), including in each case any such Revenue-Sharing Payments made by an Affiliated Sublicensee to EC pursuant to Section 3.6, shall be calculated and reported for each calendar quarter and shall be paid within […***…] after the end of the calendar quarter. No later than the date any Revenue-Sharing Payments for a calendar quarter are due in accordance with the preceding sentence, CRISPR and/or one or more Affiliated Sublicensees shall deliver to EC a report of (a) Net Sales of Therapeutic Products and Diagnostic Products by CRISPR and Sublicensees and (b) Sublicensing Revenues received by CRISPR and Affiliated Sublicensees in sufficient detail to permit confirmation of the accuracy of the Revenue-Sharing Payments made, including (i) gross sales and Net Sales of Therapeutic Products on a Therapeutic Product-by-Therapeutic Product and country-by-country basis, (ii) gross sales and Net Sales of Diagnostic Products on a Diagnostic Products on a Diagnostic Product-by-Diagnostic Product and country-by-country basis, (iii) the royalty payable, (iv) Sublicensing Revenues received on a Third Party Sublicensee-by-Third Party Sublicensee basis, and (v) the exchange rates used to calculate Revenue-Sharing Payments. All reports delivered to EG pursuant to this Section 4.1 shall be deemed Confidential Information of CRISPR.

4.2 Manner and Place of Payment; Exchange Rate. All payment amounts specified in this Agreement are stated, and all payments hereunder shall be payable, in Swiss francs (CHF). With respect to each quarter, whenever conversion of payments from any foreign currency into CHF shall be required, such conversion shall be made using the applicable exchange rate for such currency used throughout CRISPR's or the applicable Affiliated Sublicensee's accounting system for the applicable quarter. All payments owed under this Agreement shall be made by wire transfer to a bank and account designated in writing by EC, unless otherwise specified in writing by EC.

4.3 Income Tax Withholding. EC will pay any and all taxes levied on account of any payments made to her under this Agreement. If any taxes are required to be withheld by CRISPR or an Affiliated Sublicensee from any payment made to EC under this Agreement, CRISPR or such Affiliated Sublicensee shall (a) deduct such taxes from the payment made to EC, (b) timely pay the taxes to the proper taxing authority, and (c) send proof of payment to EC and certify its receipt by the taxing authority within […***…] following such payment.

4.4 Audits. During the Term and for a period of […***…] thereafter, CRISPR shall keep, and shall cause Sublicensees to keep, complete and accurate records pertaining to the sale or other disposition of Therapeutic Products and Diagnostic Products by CRISPR and Sublicensees, and shall keep, and shall cause its Affiliated Sublicensees to keep, complete and accurate records pertaining to the receipt of Sublicensing Revenues by CRISPR and its Affiliated Sublicensees, each in sufficient detail to permit EC to confirm the accuracy of all Revenue-Sharing Payments. EC shall have the right to cause an independent, certified public accountant reasonably acceptable to CRISPR to audit such records to confirm Net Sales, Sublicensing

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Revenues and Revenue-Sharing Payments for a period covering not more than the preceding […***…] years. CRISPR (or the Affiliated Sublicensee to be audited) may require such accountant to execute a reasonable confidentiality agreement prior to commencing the audit. Such audits may be conducted during normal business hours upon reasonable prior written notice to CRISPR, but no more frequently than once per year. No accounting period shall be subject to audit more than […***…] by EC. Prompt adjustments (including remittances of underpayments or overpayments disclosed by such audit) shall be made by the parties to reflect the results of such audit. […***…] shall bear the full cost of such audit unless such audit discloses an underpayment of […***…] or more of the amount of Revenue-Sharing Payments due under this Agreement, in which case CRISPR shall bear the full cost of such audit. All records, documentation and other information made available by CRISPR or an audited Affiliated Sublicensee to such independent auditor, or by CRISPR, an audited Affiliated Sublicensee or such independent auditor to EC, pursuant to this Section 4.4 shall be deemed Confidential Information of CRISPR.

4.5 Late Payments. In the event that any payment due under this Agreement is not made when due, such payment shall accrue interest, calculated on a daily basis, at the […***…] for the period from the due date for payment until the date of actual payment; *provided however*, that in no event shall such rate exceed the maximum legal annual interest rate. The payment of such interest shall not limit EC from exercising any other rights she may have as a consequence of the lateness of any payment.

5. PATENT MATTERS

5.1 Joint Owners' Rights.

(a) The parties acknowledge that the Joint Owners and EC share rights to prosecute and maintain the Patent Rights, as confirmed by that certain letter from the U.S. Patent and Trademark Office ("***USPTO***") to Regents and Regents' outside patent counsel dated June 17, 2013, granting EC's petition, filed on June 7, 2013, requesting that the USPTO accept a power of attorney appointing the attorneys of Goodwin Procter LLP as EC's own representatives and attorneys of record with respect to the Patent Application.

(b) Accordingly, the parties further acknowledge and agree that the following provisions of this Article 5 pertain only to the allocation between EC and CRISPR of EC's rights to prosecute and maintain the Patent Rights, and not to the Joint Owners" rights to prosecute and maintain the Patent Rights and are granted by EC only to the extent that EC is able to grant such rights. The parties also acknowledge that EC and the Joint Owners have not, as at the Effective Date, reached any agreement between them concerning the prosecution, maintenance and/or enforcement of the Patent Rights and that the Joint Owners have not given EC any authority to undertake any of these activities independently.

5.2 ERS and Tracr.

(a) CRISPR acknowledges that concurrently with the execution of this Agreement:

(i) EC and ERS are entering into a license agreement pursuant to which EC has granted to ERS […***…];

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(ii) EC and Tracr are entering into a license agreement pursuant to which EC has granted to Tracr an exclusive license under EC's joint ownership interest in and to the Technology to research, develop, make, have made, use, sell, have sold, offer for sale and import Therapeutic Products in the Tracr Field and Diagnostic Products for use with such Therapeutic Products in the form attached hereto as **Exhibit E**, (the "***Truer License***"), and has delegated to Tracr certain of her rights as joint owner of the Patent Rights with respect to prosecution, maintenance, defense and enforcement of the Patent Rights thereunder; and

(iii) the terms of this Agreement, the ERS License and the Tracr License do not conflict, including, without limitation, the respective license grants.

(b) Subject to EC's compliance with Section 5.2(c) below, ERS and Tracr shall be intended third party beneficiaries of the rights conferred on ERS and Tracr, respectively, under Sections 5.3, 5.4 and 5.5 (excluding Sections 5.5(b) and 5.5(c)) of this Agreement with the right under the Contracts (Rights of Third Parties) Act 1999 to exercise such rights under the provisions of such Sections to the extent permitted by the ERS License or Tracr License (as applicable) and standing to enforce the provisions of such Sections against CRISPR.

(c) EC shall neither amend nor modify the ERS License in any manner that would diminish the rights or interests of CRISPR under the ERS License as set forth therein as of the Effective Date, or the Tracr License in any manner that would diminish the rights or interests of CRISPR under the Tracr License as set forth therein as of the Effective Date; except, in each case, with the prior written consent of CRISPR.

5.3 Patent Prosecution and Maintenance. For purposes of this Section 5.3, a party's right to prosecute and maintain a patent application or patent shall be deemed to include, without limitation, the right to control any interference, reexamination, reissue, opposition, derivation, *inter partes* review, post-grant review, revocation, nullification, cancellation or other post-grant proceeding (each, a "***Patent Proceeding***") with respect to such patent application or patent, and the right to seek patent term restorations, supplementary protection certificates and other forms of patent term extensions with respect thereto.

(a) CRISPR shall have the first right, but not the obligation, to control and manage the preparation, filing, prosecution and maintenance of the CRISPR Patent Rights and Overlapping Patent Rights, at its sole cost and expense and by counsel of its own choice. Although CRISPR shall have the right, but not the obligation, to engage Goodwin Procter LLP to manage the preparation, filing, prosecution and maintenance of the CRISPR Patent Rights and Overlapping Patent Rights, an engagement to which F.C hereby consents, CRISPR shall at all times have the right to use any counsel of its choosing, with or without the consent of EC, ERS or Tracr. CRISPR shall keep EC, ERS and Tracr reasonably informed of progress with regard to the preparation, filing, prosecution and maintenance of such Patent Rights and shall consult with, and consider in good faith the requests and suggestions of EC and Tracr with respect to the CRISPR Patent Rights and each of EC, ERS and Tracr with respect to Overlapping Patent Rights. CRISPR shall incorporate the reasonable requests and suggestions of each of EC and

ERS with respect to claims of the Patent Rights covering inventions having applicability or utility exclusively in the ERS Field and not having applicability or utility in the CRISPR Field or the Tracr Field, EC and ERS shall each have the right to request the filing of continuation or divisional applications containing claims of the Patent Rights covering inventions having applicability or utility exclusively in the ERS Field and not having applicability or utility in the CRISPR Field or the Tracr Field, to the extent reasonably possible, and CRISPR shall bear the cost of preparing, filing, and prosecuting such claims and recover such costs from ERS. If it is not reasonably possible to file such continuation or divisional applications. EC or ERS shall have the right to request the reasonable addition of such claims to Overlapping Patent Rights, and CRISPR shall bear the cost of preparing, filing, and prosecuting such claims and recover such costs from ERS.

(b) If CRISPR desires to abandon or cease prosecution or maintenance of any patent application or patent within the Patent Rights in any country, CRISPR shall provide reasonable prior written notice to EC, ERS and Tracr of such intention to abandon (which notice shall, to the extent possible, be given no later than […***…] prior to the next deadline for any action that must be taken with respect to any such patent application or patent in the relevant patent office). In such case:

(i) EC or ERS may, by written notice to CRISPR, elect to continue prosecution and/or maintenance of any such patent application or patent within the Overlapping Patent Rights, at her/its cost and expense and choice of counsel, and CRISPR's license under Section 2.1 solely with respect to such patent application or patent in such country shall terminate; and

(ii) EC or Tracr may, by written notice to CRISPR, elect to continue prosecution and/or maintenance of any such patent application or patent within the CRISPR Patent Rights, at her/its cost and expense and choice of counsel, and CRISPR's license under Section 2.1 solely with respect to such patent application or patent in such country shall terminate.

5.4 Cooperation.

(a) Each party agrees to cooperate fully in the preparation, tiling, prosecution and maintenance of Patent Rights under Section 5.3. Such cooperation includes, but is not limited to: (i) executing all papers and instruments, or requiring its employees or contractors, to execute such papers and instruments, so as to enable the other party to apply for and to prosecute patent applications in any country as permitted by Section 5.3, including, without limitation, any power of attorney or similar instrument appointing the attorneys of any law firm selected by CRISPR as EC's representatives and attorneys of record with respect to the Patent Rights and any petition or submission to the USPTO or any foreign patent office requesting that the USPTO or such foreign patent office accept the attorneys of such CRISPR-selected law firm as EC's representatives and attorney s of record with respect to the Patent Rights; (ii) promptly informing the other party of any matters coming to such party's attention that may affect the preparation, filing, prosecution or maintenance of Patent Rights; and (iii) providing, at the expense of the party controlling and managing the preparation, filing, prosecution and maintenance of the Patent Rights, any requested evidence or testimony, whether oral or written, in connection with the prosecution and maintenance of the Patent Rights, including any Patent Proceedings. CRISPR shall be responsible for paying all EC's costs in assisting and cooperating with CRISPR under this Section 5.4(a).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) CRISPR agrees to cooperate fully with ERS: (i) in the preparation, filing, prosecution and maintenance of Patent Rights under Section 5.3; and (ii) in connection with ERS' preparation, filing, prosecution and maintenance of ERS Patent Rights. CRISPR shall be responsible for paying all ERS's costs in assisting and cooperating with CRISPR under clause (i) of this Section 5.4(b).

(c) CRISPR acknowledges that any preparation, filing, prosecution and maintenance of Patent Rights will require co-operation between CRISPR and the Joint Owners.

5.5 Infringement by Third Parties.

(a) In the event that either EC or CRISPR becomes aware of any infringement or threatened infringement in the CRISPR Field or Tracr Field by a Third Party of any Patent Right, such party shall promptly notify the other party in writing to that effect. To the extent that it is legally permitted to do so, CRISPR shall have the first right to bring and control any action or proceeding with respect to infringement of any Patent Right within the CRISPR Field or the Tracr Field, at its own expense and by counsel of its own choice. EC will at CRISPR's expense join and cooperate fully in such action if EC is required to do so by CRISPR and shall request that ERS and Tracr shall join and cooperate fully in such action if and to the extent appropriate, all at CRISPR's expense. CRISPR shall keep EC fully informed and up to date with respect to such infringement actions and shall take into account any reasonable suggestions made by EC. EC shall have the right if she chooses, to join the proceedings on her own accord, at her own expense, to be represented in any such action by counsel of her own choice, and to review and comment on any papers filed during such action. In addition, if the infringement relates to both the CRISPR Field and the ERS Field, ERS shall have the right if it chooses, to join the proceedings on its own accord, at its own expense, to be represented in any such action by counsel of its own choice, and to review and comment on any papers filed during such action, and if the infringement relates to both the CRISPR Field and the Tracr Field. Tracr shall have the right if it chooses, to join the proceedings on its own accord, at its own expense, to be represented in any such action by counsel of its own choice, and to review and comment on any papers filed during such action. EC may, if she wishes, delegate the performance of any participation rights and activities under this Section 5.5(a) to ERS.

(b) If CRISPR fails to bring am such action or proceeding within (i) […***…] following the notice of alleged infringement or (ii) […***…] before the time limit, if any, set forth in the appropriate laws and regulations for the filing of such actions, whichever comes first, then EC shall have the right to bring and control any such action at her own expense and by counsel of her own choice. CRISPR shall join and cooperate fully in such action, at EC's expense. CRISPR shall have the right, at its own expense, to be represented by counsel of its own choice in any such action brought by EC. and to review and comment on any papers filed during such action. Notwithstanding any other provision of this Article 5 to the contrary, EC's rights under this Section 5.5(b) shall be exercisable only by EC and may not be extended to ERS or Tracr.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(c) In the event EC brings any infringement action in accordance with Section 5.5(b), CRISPR shall cooperate fully, including, if required to bring such action, the furnishing of a power of attorney or being named as a party.

(d) Neither party shall have the right to settle any patent infringement litigation under this Section 5.5 without the prior written consent of the other party, which shall not be unreasonably withheld. Except as otherwise agreed by the parties in connection with a cost-sharing arrangement, any recovery realized by a party as a result of any action or proceeding pursuant to this Section 5.5, whether by way of settlement or otherwise, after reimbursement of any litigation expenses of the parties, shall be retained by the party that brought and controlled such action for purposes of this Agreement; *provided, however,* that any recovery realized by CRISPR as a result of any action brought and controlled by CRISPR pursuant to this Section 5.5, after reimbursement of the parties' litigation expenses, shall be treated as Sublicensing Revenues for purposes of Section 3.5.

(e) To the extent that any infringement relates to both the CRISPR field and the ERS Field, CRISPR shall agree a coordinated approach with ERS, and CRISPR and ERS shall cooperate with respect to any enforcement proceedings. To the extent that any infringement relates to both the CRISPR Field and the Tracr Field, CRISPR shall agree a coordinated approach with Tracr, and CRISPR and Tracr shall cooperate with respect to any enforcement proceedings. In addition, to the extent that any enforcement proceedings relate to Overlapping Patent Rights, CRISPR shall consult with ERS and take reasonable account of ERS' comments. In respect of any proceedings brought by CRISPR as referred to in this Section 5.5(e), CRISPR shall keep EC fully informed and up to date and shall take into account any reasonable suggestions made by EC.

(f) Defense of the validity or enforceability of any claim of the Patent Rights asserted in an infringement action under this Section 5.5 shall be at the sole expense and control of the party bringing the infringement action, subject to the provisions of Article 9; and *provided, however*, that each party shall reasonably inform and consider the other's input and, in addition, CRISPR shall consider the input of ERS to the extent ERS' interest in the Patent Rights could be affected.

5.6 Third Party Infringement Claims. Each party shall promptly notify the other party in writing of any allegation by a Third Party that the activity of either of the parties pursuant to this Agreement infringes or may infringe the intellectual property rights of such Third Party. EC shall have the sole right to control any defense of any such claim involving alleged infringement of Third Party rights by EC's activities at her own expense and by counsel of her own choice. CRISPR shall have the sole right to control any defense of any such claim involving alleged infringement of Third Party rights by CRISPR's activities at its own expense and by counsel of its own choice. Neither party shall have the right to settle any patent infringement litigation under this Section 5.6 in a manner that diminishes the rights or interests of the other party without the written consent of such other party (which shall not be unreasonably withheld).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.7 CRISPR Affiliates and Assignees. The parties agree that, at CRISPR's discretion, CRISPR's rights under this Article 5 may be exercised on behalf of CRISPR by any Affiliated Sublicensee designated by CRISPR from time to time.

5.8 Legal Inability to Exercise Rights. CRISPR acknowledges that EC shall not be liable to CRISPR if CRISPR is unable as a matter of law to control filing, prosecution, maintenance, enforcement and defense of one or more of the Patent Rights in any country.

6. REPRESENTATIONS AND WARRANTIES; DISCLAIMER; LIMITATION OF LIABILITY

6.1 Mutual Representations and Warranties. CRISPR represents and warrants to EC that: (a) CRISPR is duly authorized to execute and deliver this Agreement and to perform CRISPR's obligations hereunder; and (b) this Agreement is legally binding upon CRISPR. enforceable in accordance with its terms, and does not conflict with any agreement, instrument or understanding, oral or written, to which CRISPR is a party or by which CRISPR may be bound, EC represents and warrants that this Agreement is legally binding upon EC, enforceable in accordance with its terms (subject to and without prejudice to the limitations in Section 2.3 and Section 5.1(b)) and does not conflict with any agreement, instrument or understanding, oral or written, to which EC is a party or by which EC may be bound.

6.2 EC Representations and Warranties. EC represents and warrants to CRISPR as of the Effective Date that: (a) EC has not assigned, or agreed to assign, to Regents, Vienna or any other Third Party her interest in the Patent Rights; (b) EC has not licensed, assigned, transferred or Otherwise disposed, or offered or agreed to assign, transfer or otherwise dispose, of any of her interest in or to, nor entered or agreed to enter into any contracts in relation to her interest in or to, any Patent Rights in the CRISPR field, and EC has not created or allowed to be created any lien or encumbrance on her interest in any Patent Rights in the CRISPR Field (other than any of the foregoing that has expired or been terminated prior to the Effective Date and is of no further force or effect); and (c) EC has not received any notice alleging that the practice of the Technology infringes or misappropriates, or may infringe or misappropriate, any intellectual property rights of any Third Party. EC further represents and warrants to CRISPR that she has obtained legal advice of independent legal counsel as to the legal effect of signing this Agreement and as regards the extent of her liability and the obligations which she is undertaking by signing this Agreement. In evidence of the foregoing. EC shall have delivered to CRISPR, on or before the Effective Date, a Certificate of Independent Legal Advice in substantially the form set forth in **Exhibit C** hereto, executed by EC's legal advisor.

6.3 EC Covenants. During the Term, EC hereby covenants: (a) not to assign, transfer or otherwise dispose, or offer or agree to assign, transfer or otherwise dispose, of any interest in or to, and not to enter, or offer or agree to enter, into any contract in relation to, any Technology in the CRISPR Field, other than this Agreement and any Services Relationship with CRISPR; and (b) not to create any lien or encumbrance on any Technology in the CRISPR Field.

6.4 Disclaimer. Except as expressly set forth in this Agreement, EACH PARTY EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, VALIDITY OF

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

PATENTS, NON-INFRINGEMENT OF THE INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICES. Without limiting the generality of the foregoing, EC specifically disclaims any express or implied warranty:

(a) as to the validity, enforceability or scope of any Patent Right; or

(b) that the exploitation of the Patent Rights or Technology will be successful.

6.5 Limitation of Liability.

(a) IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR ANY INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION DAMAGES FOR LOST PROFITS OR EXPECTED SAVINGS) ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR ITS SUBJECT MATTER; *provided*, *however*, that this Section 6.5 shall not be construed to limit CRISPR's indemnification obligations under Article 9. No provision of this Agreement shall limit a party's liability for death or personal injury caused by its negligence or for fraud.

(b) THE TOTAL AGGREGATE LIABILITY OF EC IN RESPECT OF ANY CLAIM AND ALL CLAIMS ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT AND OR ITS SUBJECT MATTER. INCLUDING TORTIOUS CLAIMS. WHICH ARE BROUGHT AGAINST EC IN ANY CALENDAR YEAR SHALL NOT EXCEED AN AMOUNT EQUAL TO THE TOTAL AMOUNT THAT EC RECEIVES FROM CRISPR UNDER ARTICLE 3 OF THIS AGREEMENT AND UNDER ANY SERVICES RELATIONSHIP IN THE CALENDAR YEAR IN WHICH THE CLAIM OR CLAIMS ARE BROUGHT AGAINST EC.

7. CONFIDENTIALITY

7.1 Confidential Information. "***Confidential Information***" shall mean all scientific, regulatory, marketing, financial, and commercial information or data, whether communicated in written, oral, graphic, electronic or visual form, that is provided by one party (the "***Disclosing Party***") to the other party (the "***Receiving Party***") in connection with this Agreement. Except as expressly set forth in this Agreement or as otherwise agreed in writing by the parties, the Receiving Party shall keep strictly confidential, in accordance with the terms and conditions of this Article 7, the Disclosing Party's Confidential Information, shall use the Disclosing Party's Confidential Information solely as expressly authorized by this Agreement, and shall not disclose the Confidential Information to any Third Party without the prior written consent of the Disclosing Party. The Receiving Party shall use at least the same degree of care to protect the Disclosing Party's Confidential Information as the Receiving Party would use to protect the Receiving Party's own Confidential Information, but no less than reasonable care.

7.2 Exceptions. Confidential Information of the Disclosing Party shall not include information that the Receiving Party can demonstrate by competent evidence: (a) was in the public domain at the time of disclosure by the Disclosing Party; (b) later became part of the public domain through no act or omission of the Receiving Party in breach of this Agreement;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(c) is lawfully disclosed to the Receiving Party on a non-confidential basis by a Third Party having the right to disclose it; or (d) was already known by the Receiving Party at the time of receiving such information from the Disclosing Party, as evidenced by the Receiving Party's pre-existing written records.

7.3 Authorized Disclosure. The Receiving Party may disclose Confidential Information as expressly permitted by this Agreement, or if and to the extent such disclosure is reasonably necessary in the following instances:

(a) filing, prosecuting or maintaining the Patent Rights in accordance with this Agreement;

(b) enforcing the Receiving Party's rights under this Agreement;

(c) prosecuting or defending litigation:

(d) complying with applicable court orders or governmental regulations:

(e) disclosure to the Receiving Party's financial, legal and other advisors on a need-to-know basis as necessary for such advisors to provide financial, legal or business advice to the Receiving Party regarding this Agreement or its subject matter, provided that such advisors are bound by non-use and non-disclosure obligations no less restrictive than those set forth in this Agreement, whether by written agreement or by applicable professional ethical obligations;

(f) in the case of CRISPR, disclosure to CRISPR's Affiliates (including, without limitation, Affiliated Sublicensees), provided that Confidential Information so disclosed shall remain subject to this Article 7;

(g) in the case of CRISPR and Affiliated Sublicensees, disclosure to Third Party Sublicensees and *bona fide* potential Third Party Sublicensees, on the condition that each such Third Party agrees to be bound by confidentiality and non-use obligations that are no less stringent than the terms of this Agreement;

(h) in the case of CRISPR (and Sublicensees), practicing the license granted hereunder or preparing and submitting regulatory filings with respect to Therapeutic Products and/or Diagnostic Products; and

(i) in the case of CRISPR and Affiliated Sublicensees, disclosure to Third Parties in connection with due diligence or similar investigations by such Third Parties and disclosure to potential Third Party investors in confidential financing documents, provided, in each case, that any such Third Party agrees to be bound by reasonable obligations of confidentiality and non-use.

Notwithstanding the foregoing, in the event the Receiving Party is required to make a disclosure of the other party's Confidential Information pursuant to Section 7.3(c) or Section 7.3(d), the Receiving Party shall, except where impracticable, give reasonable advance notice to the Disclosing Party of such disclosure and use efforts to secure confidential treatment

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

of such information at least as diligent as such party would use to protect such party's own confidential information, but in no event less than reasonable efforts. In any event, the Receiving Party agrees to take all reasonable action to avoid unauthorized disclosure and unauthorized use of Confidential Information.

7.4 Confidentiality of Agreement. Except as otherwise provided in this Article 7, each party agrees not to disclose to any Third Party the terms or existence of this Agreement without the prior written consent of the other party hereto, except that each party may make such disclosure to the extent permitted under Section 7.3 and, after the initial announcement of this Agreement pursuant to Section 7.6, each party may disclose the terms of this Agreement that have previously been made public as contemplated by Section 7.6. CRISPR acknowledges that EC is entitled to disclose the provisions of this Agreement to ERS and to Tracr, on the condition that each of them agrees to be bound by confidentiality and non-use obligations that are no less stringent than the terms of this Agreement.

7.5 Publications. EC shall be free to make publications and presentations regarding the Technology, including oral presentations and abstracts, provided such publications and presentations do not contain or disclose Confidential Information of CRISPR. Solely during the five-year period beginning on the Effective Date:

(a) in the case of any proposed oral presentation by EC regarding the Technology, EC shall inform CRISPR of EC's proposed oral presentation in advance thereof; and

(b) CRISPR shall have the right to review any written material proposed for publication by EC, such as by manuscript or abstract. Before any such written material is submitted for publication, EC shall deliver a reasonably complete draft to CRISPR a reasonable period (at least […***…], but, in any event, no fewer than […***…]) prior to submitting the material to a publisher or initiating any other disclosure. If CRISPR identifies any Confidential Information of CRISPR contained in such written material, EC shall comply with CRISPR's request to delete references to CRISPR's Confidential Information in any such material.

CRISPR (and its Sublicensees) shall at all times be free to make publications and presentations, including oral presentations and abstracts, relating to the development and commercialization of Therapeutic Products in the CRISPR Field and Diagnostic Products for use with such Therapeutic Products and other commercial exploitation of the Technology by or on behalf of CRISPR and its Sublicensees.

7.6 Publicity. At CRISPR's option, CRISPR may issue an initial press release announcing this Agreement in form and substance reasonably acceptable to EC. It is further acknowledged that a party may desire or be required to issue one or more subsequent press releases relating to this Agreement or activities hereunder. The parties agree to consult with each other reasonably and in good faith with respect to the text and timing of any such press release prior to the issuance thereof, provided that EC may not unreasonably withhold consent to such releases, and that CRISPR may issue such press releases as it determines, based on advice of counsel, are reasonably necessary to comply with applicable law or with the requirements of any stock exchange on which securities issued by CRISPR or its Affiliated Sublicensees are traded.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

In the event of a required public announcement, to the extent practicable under the circumstances, the party making such announcement shall use commercially reasonable efforts to provide the other party with a copy of the proposed text of such announcement sufficiently in advance of the scheduled release to afford such other party a reasonable opportunity to review and comment upon the proposed text.

8. TERM; TERMINATION

8.1 Term. The term of this Agreement (the "***Term***") shall begin on the Effective Date and, unless earlier terminated in accordance with this Article 8, shall expire upon expiration of all Revenue-Sharing Payment obligations of CRISPR under this Agreement.

8.2 Termination by CRISPR At Will. CRISPR shall have the right to terminate this Agreement at will at any time upon […***…] written notice to EC.

8.3 Termination for Breach. A party shall have the right to terminate this Agreement upon written notice to the other party if such other party is in material breach of this Agreement and, if capable of remedy, has not cured such breach within […***…] after notice from the terminating party requesting cure of the breach. Any such termination shall become effective at the end of such […***…] unless the breaching party has cured such breach prior to the end of such period. Any right to terminate under this Section 8.3 shall be stayed and the cure period tolled in the event that, during any cure period, the party alleged to have been in material breach shall have initiated dispute resolution in accordance with Article 10 with respect to the alleged breach, which stay and tolling shall continue until such dispute has been resolved in accordance with Article 10.

8.4 Termination for Patent Challenge. EC shall have the right to terminate this Agreement immediately upon written notice to CRISPR if CRISPR commences any interference or opposition proceeding with respect to, challenges the validity or enforceability of, or opposes any extension of, or the grant of a supplementary protection certificate with respect to, any of the Patent Rights.

8.5 Consequences of Expiration or Termination.

(a) Expiration. Upon expiration of this Agreement pursuant to Section 8.1, the license granted to CRISPR under Section 2.1 shall survive such expiration and become royalty-free, fully-paid, non-exclusive, irrevocable and perpetual.

(b) Termination. Upon any termination of this Agreement pursuant to Section 8.2, Section 8.3 or Section 8.4, the license granted to CRISPR under Section 2.1 shall terminate and revert to EC. Notwithstanding the foregoing, solely in the event of termination of this Agreement by CRISPR or EC pursuant to Section 8.3 or by EC pursuant to Section 8.4 (but not termination of this Agreement by CRISPR pursuant to Section 8.2):

(i) any sublicense granted by CRISPR to any Affiliated Sublicensee in accordance with Section 2.4 that is then in effect (together with any and all further sublicenses granted by such Affiliated Sublicensee to any Third Party Sublicensee thereunder) shall remain in full force and effect, provided that such Affiliated Sublicensee: (A) is not then in material

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

breach of its sublicense agreement; and (B) agrees to be bound to EC as such Affiliated Sublicensee's direct licensor under the terms and conditions of this Agreement (and not such sublicense agreement) as applicable to the Therapeutic Products and Diagnostic Products which are the subject of the sublicense agreement; provided that such Affiliated Sublicensee shall agree in writing that in no event shall EC be liable to such Affiliated Sublicensee for any actual or alleged breach of such sublicense agreement by CRISPR. In addition, to the extent that any such Affiliated Sublicensee was exercising CRISPR's rights under Article 5 at the time of termination of this Agreement as contemplated by Section 5.7, such Affiliated Sublicensee may continue to exercise such rights after such termination subject to the terms and conditions of this Agreement; and

(ii) any sublicense granted by CRISPR directly to any Third Party Sublicensee in accordance with Section 2.4 that is then in effect (together with any and all further sublicenses granted by such Third Party Sublicensee to any further Third Party Sublicensee thereunder) shall remain in full force and effect, provided that such Third Party Sublicensee: (A) is not then in material breach of its sublicense agreement; and (B) agrees to be bound to EC as such Third Party Sublicensee's direct licensor under the terms and conditions of the sublicense agreement; provided that (1) such Third Party Sublicensee shall agree in writing that in no event shall EC be liable to such Third Party Sublicensee for any actual or alleged breach of such sublicense agreement by CRISPR, (2) such sublicense agreement shall be subordinate and comply in all respects to the applicable provisions of this Agreement, and (3) EC shall not have any obligations to such Third Party Sublicensee other than EC's obligations to CRISPR as set forth herein.

(c) Inventory. Upon any termination of this Agreement pursuant to Section 8.2, Section 8.3, Section 8.4, or Section 8.5, CRISPR, and any Sublicensee whose sublicense was in effect as of immediately prior to such termination but did not remain in effect after termination as contemplated by Section 8.5(b)(i) or Section 8.5(b)(ii), as applicable, shall be entitled to finish any work-in-progress and to sell any completed inventory of Therapeutic Products and Diagnostic Products which remain on hand as of the date of the termination, for up to six (6) months after termination, subject to payment of royalties to EC in accordance with Section 3.4.

(d) Return of Confidential Information. Within […***…] following the expiration or termination of this Agreement, each party shall return to the other party, or destroy, upon the written request of the other party, any and all Confidential Information of the other party in such party's possession; *provided, however* that each party may retain one copy of the other party's Confidential Information in such party's legal archives for the sole purpose of monitoring compliance with such party's obligations, enforcing such party's rights hereunder, and exercising such party's surviving rights hereunder.

8.6 Surviving Obligations. Neither expiration nor termination of this Agreement shall relieve either party of any obligation accruing prior to such expiration or termination. In addition, Section 3.4 (for the period specified in Section 8.5(c)) and Sections 2.1(c), 2.9, 4.3, 4.4, 4.5, 5.8, 6.4, 6.5, 7.1, 7.2, 7.3, 7.4, 8.5 and 8.6 and Articles 9, 10 and 11 shall survive any expiration or termination of this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

9. INDEMNIFICATION

9.1 Indemnification by CRISPR. CRISPR hereby agrees to save, defend, indemnify and hold harmless EC from and against any and all losses, damages, liabilities, expenses and costs, including reasonable legal expense and attorneys' fees ("***Losses***"), to which she may become subject as a result of any claim, demand, action or other proceeding by any person to the extent such Losses arise out of: (a) the gross negligence or willful misconduct of CRISPR, its Affiliates and/or their respective officers, directors, employees, consultants and agents; (b) the breach by CRISPR of any warranty, representation, covenant or agreement made by CRISPR in this Agreement; (c) the practice by CRISPR or Sublicensees of the license granted hereunder; or (d) the development, manufacture, use, handling, storage, sale or other disposition of any Therapeutic Product or Diagnostic Product by or on behalf of CRISPR or Sublicensees; in each case, except to the extent such Losses result from the gross negligence or willful misconduct of EC or the breach by EC of any warranty, representation, covenant or agreement made by EC in this Agreement.

To the extent not already covered by CRISPR's indemnification obligations under the first paragraph of this Section 9.1, CRISPR further agrees hereby to save, defend, indemnify and hold harmless EC from and against any and all Losses to which she may become subject as a result of any claim, demand, action or other proceeding by any person (including without limitation Regents, Vienna or any person to whom either of them may have granted, or purported to grant, rights under the Patent Rights) relating to or arising out of: (i) EC entering into this License Agreement with CRISPR and her grant of rights to CRISPR; (ii) the exercise by CRISPR of any of its rights under this Agreement; (iii) the filing, prosecution, maintenance, enforcement and/or defense by CRISPR of the Patent Rights in relation to the CRISPR Field; or (iv) EC bringing an infringement action under the Patent Rights or other Patent Proceedings at the request, under the direction, and in accordance with the instructions, of CRISPR; in each case, except to the extent such Losses result from the gross negligence or willful misconduct of EC or the breach by EC of any warranty, representation, covenant or agreement made by EC in this Agreement.

9.2 Control of Defense. In the event EC seeks indemnification under Section 9.1, EC shall inform CRISPR of a claim as soon as reasonably practicable after EC receives notice of the claim (it being understood and agreed, however, that the failure by EC to give notice of a claim as provided in this Section 9.2 shall not relieve CRISPR of CRISPR's indemnification obligation under this Agreement except and only to the extent that CRISPR is actually damaged as a result of such failure to give notice), shall permit CRISPR to assume direction and control of the defense of the claim (including the right to settle the claim solely for monetary consideration) using counsel reasonably satisfactory to EC, and shall cooperate as requested (at the expense of CRISPR) in the defense of the claim. If CRISPR does not assume control of such defense within […***…] after receiving notice of the claim from EC, EC shall control such defense and, without limiting CRISPR's indemnification obligations, CRISPR shall reimburse EC for all costs, including reasonable attorney fees, incurred by EC in defending herself within […***…] after receipt of any invoice therefor from EC. The party not controlling such defense may participate therein at such party's own expense. The party controlling such defense shall keep the other party advised of the status of such action, suit, proceeding or claim and the defense thereof and shall consider recommendations made by the other party with respect thereto. EC

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

shall not agree to any settlement of such action, suit, proceeding or claim without the prior written consent of CRISPR, which shall not be unreasonably withheld, delayed or conditioned. CRISPR shall not agree to any settlement of such action, suit, proceeding or claim or consent to any judgment in respect thereof that does not include a complete and unconditional release of EC from all liability with respect thereto, that imposes any liability or obligation on EC, that acknowledges fault by EC or that affects the rights of EC in the Patents Rights without the prior written consent of EC.

9.3 Insurance. During the term of this Agreement, CRISPR shall maintain, and shall require Sublicensees to maintain, insurance of such types and in such amounts as are commercially reasonable in light of their respective activities hereunder.

9.4 English Law. No provision of this Agreement shall operate to:-

(a) exclude any provision implied into this Agreement by English law and which may not be excluded by English law; or

(b) limit or exclude any liability, right or remedy to a greater extent than is permissible under English law including in relation to (I) death or personal injury caused by the negligence of a party to this Agreement or (2) fraudulent misrepresentation or deceit.

10. DISPUTE RESOLUTION

10.1 Dispute Resolution. It is the desire of the parties that any dispute arising under or relating to the parties" rights and obligations under this Agreement be resolved amicably by good faith discussions between the parties. If a party delivers written notice to the other party of any such dispute, the parties shall promptly convene a meeting (either in person or by telephone conference or videoconference) to attempt in good faith to resolve such dispute.

10.2 Arbitration.

(a) LC1A Rules. Except as expressly set forth in Section 10.3, any dispute arising out of or in connection with this Agreement, including any question regarding its existence, validity or termination, that is not resolved by the parties within […***…] after a party's delivery to the other party of notice of such dispute shall, upon the written request of either party, be referred to and finally resolved by arbitration under the arbitration rules of the London Court of International Arbitration (the "***Rules***"), which Rules are deemed to be incorporated by reference into this clause, except to the extent any such Rule conflicts with the express provisions of this Article 10. The arbitration shall be determined by a single, independent, impartial arbitrator. The seat, or legal place, of arbitration shall be London, England. The language to be used in the arbitral proceedings shall be English. The governing law of the contract shall be the substantive law of England, excluding its conflicts of laws principles.

(b) Expedited Binary Arbitration. Within […***…] following appointment of the arbitrator in accordance with the Rules, each party shall submit to the arbitrator so appointed a written proposal setting forth a complete resolution of the applicable dispute that such party believes is reasonable under the circumstances, including, without

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

limitation, any economic remedy such party believes is justified. Within […***…] following submission of the parties' written proposals to the arbitrator, the arbitrator shall select the proposal that such arbitrator determines to be the more reasonable of the two. The decision of the arbitrator shall be final, binding and non-appealable, except in the case of manifest error and judgment may be entered upon it in any court of competent jurisdiction, and subject to the aforesaid, the parties hereby exclude any rights of application or appeal to any court to the extent that they may validly so agree and in particular in connection with any question of law.

(c) Arbitration Costs. The arbitrator shall determine the proportions in which the parties shall pay the costs of the arbitration procedure. The arbitrator shall have the authority to order that all or a part of the legal or other costs of a party incurred in relation to the arbitration shall be paid by the other party.

10.3 Court Actions. Nothing contained in this Agreement shall deny either party the right to seek injunctive or other equitable relief from a court of competent jurisdiction in the context of a *bona fide* emergency or prospective irreparable harm, and such an action may be filed and maintained notwithstanding am ongoing discussions between the parties or any ongoing arbitration proceeding. In addition, either party may bring an action in any court of competent jurisdiction to resolve disputes pertaining to the validity, construction, scope, enforceability, infringement or other violations of patent rights or other intellectual property rights, and no such claim shall be subject to arbitration pursuant to Section 10.2.

10.4 ERS and Tracr. Notwithstanding any other provision of this Agreement:

(a) in the event that any dispute arises concerning (i) the scope of the licenses granted to CRISPR as opposed to the scope of any licenses granted to ERS under the ERS License or (ii) the rights and obligations of CRISPR under Article 5 as opposed to the rights and obligations of ERS under the ERS License, then CRISPR shall not bring any action with EC as a party but instead CRISPR and ERS shall each have the right to refer the dispute together to arbitration in order for the arbitrator to determine the extent of CRISPR's and ERS's respective rights and obligations; and

(b) in the event that any dispute arises concerning (i) the scope of the licenses granted to CRISPR as opposed to the scope of any licenses granted to Tracr under the Tracr License or (ii) the rights and obligations of CRISPR under Article 5 as opposed to the rights and obligations of Tracr under the Tracr License, then CRISPR shall not bring any action with EC as a party but instead CRISPR and Tracr shall each have the right to refer the dispute together to arbitration in order for the arbitrator to determine the extent of CRISPR's and Tracr's respective rights and obligations.

Any such arbitration shall be conducted in accordance with the principles set out in Section 10.2 above, subject to Section 10.3 above, save that Section 10.3 may not be used by CRISPR to bring any action against EC. EC shall be entitled, but shall not be obliged, to participate as a party to any such arbitration, at her expense. ERS and Tracr shall be intended third party beneficiaries under this Section 10.4 with the right under the Contracts (Rights of Third Parties) Act 1999 to enforce the provisions of this Section 10.4 against CRISPR.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11. MISCELLANEOUS

11.1 Bankruptcy Code. All rights and licenses granted under or pursuant to this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of Title 11 of the United States Code and other similar laws in any jurisdiction outside the U.S. (collectively, the "***Bankruptcy Laws***"), licenses of rights to be "intellectual property" as defined under the Bankruptcy Laws. All rights, powers and remedies of the non-bankrupt party as provided herein are in addition to and not in substitution for any and all other rights, powers and remedies now or hereafter existing at law or in equity (including, without limitation, the Bankruptcy Laws) in the event of the commencement of a case by or against a party under the Bankruptcy Laws.

11.2 Notices. All notices required or permitted to be given under this Agreement must be in writing and delivered by any method of mail (postage prepaid) requiring return receipt, by overnight courier, or by email, to the party to be notified at such party's address(es) given below, or at any address such party has previously designated by prior written notice to the other. Notice shall be deemed sufficiently given for all purposes upon the earliest of: (a) the date of actual receipt; (b) if mailed, three (3) days after the date of postmark; or (c) if delivered by overnight courier, the next business day the overnight courier regularly makes deliveries.

If to CRISPR, notices must be addressed to:

CRISPR Therapeutics AG
Aeschenvorstadt 36
CH-4051 Basel
Switzerland
Attention: Rodger Novak
Email: […***…]

With a copy to:

Vischer AG
Aeschenvorstadt 4
Postfach 526
4010 Basel
Switzerland
Attention: Mathias Staehlin
Email: mstaehelin@vischer.com

If to EC, notices must be addressed to:

Emmanuelle Charpentier
[…***…]

With a copy to:

Bristows LLP
100 Victoria Embankment
London EC4Y 0DH
United Kingdom
Attention: Laura Anderson
Email: laura.andersonrtbristows.com

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11.3 Entire Agreement; Amendment. This Agreement, and the Exhibits attached hereto, contain the entire agreement and understanding between the parties with respect to the subject matter hereof, and merge all prior discussions, representations, and negotiations with respect to the subject matter of this Agreement, including, without limitation, the Option Agreement, but excluding that certain Shareholders Agreement dated October 28, 2013, to which EC and CRISPR are parties, and that certain Consulting Agreement between CRISPR and EC dated as of the Effective Date, each of which shall continue in full force and effect in accordance with its terms. The Option Agreement shall be of no further force or effect and all rights of either party under the Option Agreement shall be extinguished on the Effective Date including (notwithstanding the provisions of Section 4.3 of the Option Agreement) any and all accrued rights or causes of action in respect of any representation, warranty or undertaking given in the Option Agreement. No amendment or modification hereof shall be valid or binding upon the parties hereto unless made in writing and signed by all parties hereto. The headings of clauses contained in this Agreement preceding the text of the sections, subsections and paragraphs hereof are inserted for convenience and ease of reference only and shall not constitute any part of this Agreement, or have any effect on its interpretation or construction. Ambiguities and uncertainties in this Agreement, if any, shall not be interpreted against any party, irrespective of which party may be deemed to have caused the ambiguity or uncertainty to exist.

11.4 Non-Waiver. The failure of a party to insist upon strict performance of any provision of this Agreement or to exercise any right or remedy arising out of this Agreement shall neither impair that provision or right nor constitute a waiver of that provision or right, in whole or in part, in that instance or in any other instance. Any waiver by a party of a particular provision, right or remedy shall be in writing, shall be as to a particular matter and, if applicable, for a particular period of time, and shall be signed by such party.

11.5 Assignment. Neither this Agreement nor any rights or obligations hereunder may be assigned or otherwise transferred by either party without the prior written consent of the other party; *provided*, *however*, that CRISPR may assign this Agreement and its rights and obligations hereunder without EC's consent: (a) in connection with the transfer or sale of all or substantially all of CRISPR's business to which this Agreement relates to a Third Party, whether by merger, sale of stock, sale of assets or otherwise; or (b) to an Affiliate. The rights and obligations of the parties under this Agreement shall be binding upon and inure to the benefit of the successors and permitted assigns of the parties, and the name of a party appearing herein will be deemed to include the name of such party's successors and permitted assigns to the extent necessary to carry out the intent of this section. Any assignment not in accordance with this Agreement shall be void.

11.6 Severability. In the event any provision of this Agreement is held to be illegal, invalid or unenforceable to any extent, the legality, validity and enforceability of the remainder of this Agreement shall not be affected thereby and shall remain in full force and effect and shall be enforced to the greatest extent permitted by law.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11.7 Choice of Law. This Agreement and any disputes arising out of or in connection with it including non-contractual disputes shall be governed by, and construed and enforced in accordance with, the laws of England, excluding its conflicts of laws principles.

11.8 Counterparts. This Agreement may be executed in any number of counterparts (including by electronic copy, facsimile or electronic signature), each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

11.9 Contracts (Rights of Third Parties) Act. Subject to the remaining provisions of this Section a person who is not a party to this Agreement has no rights (whether under the Contracts (Rights of Third Parties) Act 1999 or otherwise) to enforce any provision of this Agreement, ERS and Tracr may enforce the provisions of Sections 5.3, 5.4 and 5.5 (excluding Sections 5.5(b) and 5.5(c)) of this Agreement to the extent set forth in, and subject to the terms of, such Sections and may enforce the provisions of Section 10.4 to the extent set forth in, and subject to the terms of, Section 10.4 and the provisions of the Contracts (Rights of Third Parties) Act 1999, Tracr may enforce the provisions of Section 2.9 of this Agreement to the extent set forth in, and subject to the terms of, such Section. Affiliated Sublicensees and Third Party Sublicensees may enforce the applicable provisions of Section 8.5(b) subject to the terms of Section 8.5(b) and the Contracts (Rights of Third Parties) Act 1999. The rights of the parties to terminate, rescind or agree any variation, waiver or settlement under this Agreement are not subject to the consent of any person that is not a party to this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the parties have executed this License Agreement as of Effective Date.

EMMANUELLE MARIE CHARPENTIER

By: /s/ Emmanuelle Marie Charpentier

CRISPR Therapeutics AG

By: /s/ Shaun Foy
Name: Shaun Foy
Title: CFO

By: /s/ Rodger Novak
Name: Rodger Novak
Title: CEO

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit A

Know-How

Protocols for carrying out the methods described in the Patent Rights.

[…***…] embodying any of the inventions claimed, or necessary or useful for carrying out the methods described, in the Patent Rights.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit B

Patent Rights

U.S. Patent Application No. 61/652,086

U.S. Patent Application No. 61/716,256

U.S. Patent Application No. 61/757,640

U.S. Patent Application No. 61/765,576

U.S. Patent Application No. 13/842,859

International Patent Application No. PCT/US2013/032589

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit C

[…***…]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit D

ERS License

Attached.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit E

Tracr License

Attached.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SPECIFIC TERMS IN THIS EXHIBIT HAVE BEEN REDACTED BECAUSE CONFIDENTIAL TREATMENT FOR THOSE TERMS HAS BEEN REQUESTED. THESE REDACTED TERMS HAVE BEEN MARKED IN THIS EXHIBIT WITH THREE ASTERISKS [***]. AN UNREDACTED VERSION OF THIS EXHIBIT HAS BEEN SEPARATELY FILED WITH THE SECURITIES AND EXCHANGE COMMISSION.

Exhibit 10.6

LICENSE AGREEMENT

THIS LICENSE AGREEMENT (***"Agreement"***) is entered into and effective as of April 10, 2014 (the ***"Effective Date"***), by and between **EMMANUELLE MARIE CHARPENTIER**, an individual residing at Böcklerstrasse 18, 38102 Braunschweig, Germany (***"EC"***), and **TRACR HEMOGLOBINOPATHIES LTD**, a UK limited company having its registered office at 90 Fetter Lane, London EC1A 1JP, United Kingdom (***"Tracr"***).

BACKGROUND

WHEREAS, Tracr desires to obtain from EC, and EC desires to grant to Tracr, an exclusive license under EC's joint ownership interest in and to the Technology (defined below) to develop and commercialize products for the treatment or prevention of hemoglobinopathies, on the terms and subject to the conditions set forth herein.

NOW, THEREFORE, in consideration of the premises and the mutual promises and covenants contained herein, the receipt and sufficiency of which are hereby acknowledged, EC and Tracr hereby agree as follows:

1. DEFINITIONS

1.1 "Affiliate" shall mean:

(a) any business entity which controls, is controlled by, or is under common control with Tracr; and for this purpose, a business entity shall be deemed to "control" another business entity, if it owns, directly or indirectly, more than 50% of the outstanding voting securities, capital stock, or other comparable equity or ownership interest of such business entity having the power to vote on or direct the affairs of such business entity; or

(b) any business entity that Tracr, at Tracr's sole option and upon written notice to EC, designates as an "Affiliate" for purposes of this Agreement, provided that, as of the date of such designation, EC is the holder of […***…] percent or more of the equity securities of such business entity on a fully-diluted and as-converted basis.

1.2 "Affiliated Sublicensee" shall mean any Affiliate to which Tracr or its Affiliate directly or indirectly (*i.e.*, through multiple tiers of sublicense) grants a sublicense under any or all of the Patent Rights. For purposes of clarification, if, at any time after the grant of a sublicense to an entity that is an Affiliate at the time of such grant, such entity ceases to be an Affiliate within the meaning of Section 1.1(a) or Section 1.1(b) (as applicable), such entity shall nevertheless continue to be considered an "Affiliated Sublicensee" (and shall not be considered a "Third Party Sublicensee") for purposes of this Agreement, including, without limitation, Article 3 hereof.

1.3 "Companion Diagnostic" shall mean any companion diagnostic tool and/or diagnostic assay developed and used to (i) identify patients who are most likely to benefit from a Therapeutic Product, (ii) identify patients likely to be at increased risk for serious adverse reactions as a result of treatment with a Therapeutic Product, and/or (iii) monitor a patient's response to a Therapeutic Product for the purpose of adjusting treatment (*e.g.*, schedule, dose, discontinuation) to achieve improved safety or effectiveness.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.4 "Confidential Information" shall have the meaning provided in Section 7.1.

1.5 "Covered Animal" shall mean an animal (including a microorganism), the genome of which (i) has been altered using a Covered Product or Covered Method or (ii) incorporates a Covered Product.

1.6 "Covered Animal-Derived Product" shall mean any tissue or organ that, in each case, is extracted or harvested from a Covered Animal but that is not itself a Covered Product. Any monoclonal antibody or other protein molecule that is first created in a Covered Animal but that is not itself a Covered Product shall not be considered a Covered Animal-Derived Product.

1.7 "Covered Method" shall mean any process or method, the use or practice of which in a country would, in the absence of the license granted under this Agreement (or a sublicense granted thereunder, as applicable), infringe a Valid Claim of the Patent Rights in such country.

1.8 "Covered Product" shall mean any product, the manufacture, use, sale or importation of which is covered by the Patent Rights, or which is based on, uses or incorporates any Technology.

1.9 "CRISPR" shall mean CRISPR Therapeutics AG, a company organized under the laws of Switzerland having a principal place of business at Aeschenvorstadt 36, CH-4051 Basel, Switzerland.

1.10 "CRISPR Field" shall mean researching, developing, making, using or selling: (a) Therapeutic Products for the treatment or prevention of any human disease, disorder or condition, but excluding any Tracr Indication; and (b) Diagnostic Products for use with such Therapeutic Products.

1.11 "CRISPR License" shall have the meaning provided in Section 5.2(a)(ii).

1.12 "CRISPR Patent Rights" shall mean EC's joint ownership interest in Patent Rights (or, as applicable, those claims of Patent Rights) that claim inventions having applicability or utility exclusively in the […***…]**.**

1.13 "Diagnostic Product" shall mean a Companion Diagnostic for use with a Therapeutic Product, which Companion Diagnostic contains or incorporates a Covered Product or a Covered Animal-Derived Product or uses a Covered Method.

1.14 "ERS" shall mean ERS Genomics Limited, a company organized under the laws of Ireland having a principal place of business at 88 Harcourt Street, Dublin 2, Ireland.

1.15 "ERS Field" shall mean all fields of use except the […***…].

1.16 "ERS License" shall have the meaning provided in Section 5.2(a)(i).

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.17 "ERS Patent Rights" shall mean EC's joint ownership interest in Patent Rights (or, as applicable, those claims of Patent Rights) that claim inventions having applicability or utility exclusively […***…].

1.18 "Invention" shall mean the invention entitled "*Methods and Compositions for RNA-Directed Target DNA Modification and for RNA-Directed Modulation of Transcription*" as described in the Patent Application, including all improvements thereto that are disclosed in the Patent Application.

1.19 "**Joint Owners"** means Regents, Vienna and any other person other than EC who is a proprietor of the Patent Rights.

1.20 "Know-How" shall mean the additional information and materials listed in **Exhibit A** […***…].

1.21 "Major Market" shall mean any of the following: […***…].

1.22 "Materials" shall mean biological materials within the Know-How that are […***…].

1.23 "NDA/BLA" shall mean: (a) in the United States, a Biologics License Application (as more fully defined in 21 CFR § 601.2) or a New Drug Application (as more fully defined in 21 CFR § 314.5 *et seq.*), as applicable, filed with the FDA, or any successor application thereto; (b) in the European Union, a Marketing Approval Authorization filed with the EMA, or any successor application thereto; or (c) in any other regulatory jurisdiction, the equivalent application for approval to market a drug filed with the governing regulatory authority in such jurisdiction.

1.24 "Net Sales" shall mean the gross amounts invoiced by Tracr and its Sublicensees to Third Parties (other than Third Party Sublicensees) from sales of Therapeutic Products or Diagnostic Products, less the following items, to the extent allocable to such Therapeutic Products or Diagnostic Products and either included in the invoice, or otherwise actually granted, allowed, taken or incurred (if not previously deducted from the amount invoiced): […***…].

[…***…].

1.25 "Overlapping Patent Rights" shall mean EC's joint ownership interest in Patent Rights (or, as applicable, those claims of Patent Rights) that claim inventions having applicability or utility […***…].

1.26 "Patent Application" shall mean U.S. Patent Application No. 13/842,859, filed on March 15, 2013.

1.27 "Patent Rights" shall mean the Patent Application and other patent applications and patents listed in **Exhibit B** attached to this Agreement; any and all patent applications that claim priority to any of the foregoing patents or patent applications listed in **Exhibit B** hereto, including, without limitation, continuations, continuations-in-part (but only to the extent the claims of any such continuation-in-part are specifically directed to subject matter disclosed in the specifications in, and entitled to the priority date of, the parent application), divisional

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

applications and substitute applications; any and all patents issuing on any of the foregoing patent applications, including registrations, renewals, reexaminations, reissues, extensions, term restorations and supplementary protection certificates; and any and all foreign counterparts of any of the foregoing; in each case, whether now existing or hereafter filed or issued.

1.28 "Phase 1 Trial" shall mean a human clinical trial that would satisfy the requirements for a Phase 1 study as defined in 21 CFR § 312.21(a) (or its successor regulation), regardless of where such trial is conducted.

1.29 "Phase 2 Trial" shall mean a human clinical trial that would satisfy the requirements for a Phase 2 study as defined in 21 CFR § 312.21(b) (or its successor regulation), regardless of where such trial is conducted.

1.30 "Phase 3 Trial" shall mean a human clinical trial that would satisfy the requirements for a Phase 3 study as defined in 21 CFR § 312.21(c) (or its successor regulation), regardless of where such trial is conducted.

1.31 "Regents" shall mean The Regents of the University of California, a California corporation having its corporate offices located at 1111 Franklin Street, Oakland, California 94607-5200, acting through The Office of Technology Licensing of the University of California, Berkeley, located at 2150 Shattuck Avenue, Suite 510, Berkeley, CA 94704-1347.

1.32 "Revenue-Sharing Payments" shall have the meaning provided in Section 4.1.

1.33 "Sublicensee" shall mean an Affiliated Sublicensee and/or Third Party Sublicensee, as applicable.

1.34 "Sublicensing Revenues" shall mean all amounts received by Tracr or any of its Affiliated Sublicensees from any Third Party Sublicensee in consideration of the grant by Tracr or its Affiliated Sublicensee of a Sublicense under any or all of the Patent Rights, including, […***…], and any other payments with respect to such sublicense; but excluding:

(a) […***…]

(b) […***…]

(c) […***…]

(d) […***…]

(e) […***…].

[…***…].

1.35 "Technology" shall mean the Invention, Patent Rights and Know-How.

1.36 "Term" shall have the meaning provided in Section 8.1.

1.37 "Therapeutic Product" shall mean […***…].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.38 "Third Party" shall mean any entity other than EC, Tracr and any Affiliate of Tracr.

1.39 "Third Party Sublicensee" shall mean any Third Party to which Tracr or its Affiliated Sublicensee has directly or indirectly (*i.e.*, through multiple tiers of sublicense) granted a sublicense under any or all of the Patent Rights. For clarification, a Third Party service provider that has the right to make, have made, use or sell Therapeutic Products or Diagnostic Products solely on behalf of Tracr or its Affiliated Sublicensee and not for its own account shall not be considered a Third Party Sublicensee.

1.40 "Tracr Field" shall mean researching, developing, making, using or selling: (a) Therapeutic Products for any Tracr Indication; and (b) Diagnostic Products for use with such Therapeutic Products.

1.41 "Tracr Improvement" shall mean any improvement to the Invention made solely by or on behalf of Tracr, and owned solely by Tracr: (a) that is useful in the CRISPR Field (whether or not also useful in the Tracr Field); and (b) the practice of which either (i) is within the scope of the claims of the Patent Rights or (ii) requires the practice of the Invention.

1.42 "Tracr Improvement IP" shall have the meaning provided in Section 2.9.

1.43 "Tracr Improvement License" shall have the meaning provided in Section 2.9.

1.44 "Tracr Indication" shall mean the treatment or prevention of any hemoglobinopathy in humans, including, without limitation, sickle cell disease and thalassemia.

1.45 "Valid Claim" shall mean a claim contained in: (a) an issued and unexpired patent which has not been held unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through abandonment, reissue, disclaimer or otherwise; or (b) a patent application that has not been irretrievably cancelled, withdrawn or abandoned and that has been pending for less than […***…].

1.46 "Vienna" shall mean the University of Vienna, having a principal place of business at Universitatsring 1, 1010, Vienna, Austria.

2. LICENSE

2.1 Grant. Subject to the terms and conditions of this Agreement, including without limitation the provisions of Section 2.2, EC hereby grants to Tracr:

(a) an exclusive (even as to EC, except as set forth in Section 2.8), worldwide, royalty-bearing license, including the right to sublicense through multiple tiers, under EC's joint ownership interest in and to the Technology, to research, develop, make, have made, use, sell, have sold, offer for sale and import Therapeutic Products in the Tracr Field and Diagnostic Products for use with such Therapeutic Products;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) a non-exclusive, worldwide, royalty-free license, including the right to sublicense through multiple tiers (but only together with the license in Section 2.1(a) above), under EC's joint ownership interest in and to the Technology, to carry out internal pharmaceutical research in relation to products which are not Therapeutic Products; and

(c) an exclusive (even as to EC), worldwide, royalty-free sublicense, including the right to sublicense through multiple tiers, under CRISPR Improvement IP which is licensed to EC under the CRISPR License, to research, develop, make, have made, use, sell, have sold, offer for sale and import Therapeutic Products in the Tracr Field and Diagnostic Products for use with such Therapeutic Products but without prejudice to Tracr's payment obligations in respect of Therapeutic Products and Diagnostic Products under Article 3.

2.2 License Exclusions. For the avoidance of doubt, Tracr shall not have any license under EC's joint ownership interest in and […***…].

2.3 Acknowledgment of Joint Ownership. Tracr acknowledges that as at the Effective Date, it has not obtained any right or license under the joint ownership interest of any Joint Owner in and to the Technology and, as such Tracr's exclusivity under Section 2.1(a) is limited to EC's joint ownership interest and consequently Tracr does not have the exclusive right to exploit the Technology in the Tracr Field. Tracr also acknowledges that EC has not obtained the consent of any Joint Owner in respect of the grant of the licenses under Section 2.1 and that, as such, EC gives no representation or warranty as to the validity, enforceability or effect of the licenses in any country in the Territory.

2.4 Sublicensing. Any and all sublicenses of the license granted to Tracr under Section 2.1 shall be in writing and shall be subject to, and consistent with, the terms and conditions of this Agreement. Tracr shall be responsible for the compliance of its Sublicensees with the terms and conditions of this Agreement. Within 30 days after execution, Tracr shall provide EC with a full and complete copy of each sublicense agreement (provided that Tracr may redact any confidential information contained therein that is not necessary to ascertain compliance with this Agreement).

2.5 Technology Transfer. Promptly following the Effective Date, EC shall disclose to Tracr (to the extent not previously disclosed) all Know-How available in written, electronic or other recorded form. In addition, during the 12-month period beginning on the Effective Date, EC shall transfer to Tracr, upon Tracr's request from time to time, samples of the Materials, subject to availability.

2.6 Diligence; Progress Reports.

(a) Tracr shall use commercially reasonable efforts and due diligence, itself and/or through one or more Sublicensees, to develop, and to obtain regulatory approval to market, at least one Therapeutic Product in the Tracr Field, as promptly as is reasonably and commercially feasible. Without limiting the generality of the foregoing, Tracr, itself and/or through one or more Affiliated Sublicensees, shall:

(i) use commercially reasonable efforts […***…]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(ii) use commercially reasonable efforts to commercially exploit the Technology in the Tracr Field (including, without limitation, by sublicensing) within […***…] years of the Effective Date; and

(iii) use commercially reasonable efforts to file, or cause to be filed, a U.S. Investigational New Drug application (or the equivalent thereof in another Major Market) for a Therapeutic Product in the Tracr Field within seven years after the Effective Date; and

(iv) file, or cause to be filed, a U.S. Investigational New Drug application (or the equivalent thereof in another Major Market) for a Therapeutic Product in the Tracr Field within ten years after the Effective Date.

(b) Tracr shall keep EC informed as to progress with respect to the development of Therapeutic Products and Diagnostic Products in the Tracr Field (whether by Tracr or its Sublicensees), including, without limitation, the conduct of clinical trials, regulatory submissions and approvals, manufacturing arrangements, marketing activities and sublicensing, and shall deliver to EC a written annual report summarizing such progress by […***…] of each year, beginning […***…]. For clarification, Tracr's reporting obligations under this Section 2.6(b) are in addition to Tracr's reporting obligations under Section 4.1. The contents of Tracr's progress reports to EC shall be deemed to be Tracr's Confidential Information.

2.7 No Implied License. This Agreement confers no license or rights by implication, estoppel, or otherwise under any patent rights of EC other than the Patent Rights regardless of whether such patent rights are dominant or subordinate to the Patent Rights.

2.8 Reservation of Rights. EC reserves the non-transferable right, without the right to license or sublicense, to use the Technology for her own research purposes and in research collaborations with academic or non-profit partners provided such research is not funded in whole or in part by any commercial sponsor except where EC has discussed any commercial funding with Tracr and Tracr has confirmed in writing that it does not object to EC pursing the relevant research or research collaboration with the disclosed commercial funding. For clarity, as between EC and Tracr, and except as expressly set forth in Section 2.1(b), EC retains all rights to the Technology outside of the Tracr Field.

2.9 Tracr Improvement License Grant-Back in CRISPR Field. Subject to the terms and conditions of this Agreement, Tracr hereby grants to EC an exclusive (even as to Tracr), worldwide, royalty-free license, including the right and obligation to sublicense exclusively and solely to CRISPR (and which CRISPR may further sublicense through multiple tiers of sublicense), under Tracr's patent and other intellectual property rights in Tracr Improvements (***"Tracr Improvement IP"***), to research, develop, make, have made, use, sell, have sold, offer for sale and import Therapeutic Products solely in the CRISPR Field and Diagnostic Products for use with such Therapeutic Products (***"Tracr Improvement License"***). EC shall have the right and the obligation to grant to CRISPR (and only to CRISPR) an exclusive (even as to EC), worldwide, royalty-free sublicense of the Tracr Improvement License pursuant to the CRISPR License, and shall not have the right to grant any other sublicense under the Tracr Improvement License or Tracr Improvement IP or to practice the Tracr Improvement License or Tracr Improvement IP herself. For clarity, Tracr retains the exclusive right to practice

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

and grant licenses under Tracr Improvements and the Tracr Improvement IP for all uses other than research, development, manufacture, use, sale, offer for sale and import of Therapeutic Products in the CRISPR Field and Diagnostic Products for use with such Therapeutic Products, including, without limitation, all uses in the Tracr Field. EC shall not acquire any right to prosecute, maintain, enforce and defend the Tracr Improvement IP.

3. PAYMENTS

3.1 Milestone Payments. Within […***…] after the first achievement by Tracr or a Sublicensee of each of the following milestone events by any Therapeutic Product, Tracr shall provide written notice to EC of the occurrence of such event. Where the milestone event is achieved by Tracr, Tracr shall pay to EC the corresponding milestone payment set forth below. Where the milestone event is achieved by a Sublicensee, Tracr shall pay to EC the difference between the corresponding payment set forth below and the amount payable by Tracr to EC in accordance with Section 3.3 below as a result of Tracr's receipt of any milestone payment from the Sublicensee for the achievement of that milestone event, if the amount payable under Section 3.3 is lower.

Milestone Event	Payment
Initiation of first Phase 1 Trial	CHF […***…]
Initiation of first Phase 2 Trial	CHF […***…]
Initiation of first Phase 3 Trial	CHF […***…]
Approval of first NDA/BLA in first Major Market	CHF […***…]

Each of the foregoing milestone payments shall be payable only one time per Therapeutic Product (regardless of the number of times any Therapeutic Product achieves such milestone or the number of indications for which such Therapeutic Product is developed).

3.2 Royalties. Tracr shall pay to EC a royalty equal to […***…] of Net Sales of Therapeutic Products and Diagnostic Products by Tracr and its Sublicensees. Only one royalty payment shall be due under this Agreement with respect to a sale of a Therapeutic Product or Diagnostic Product, regardless of the number of Valid Claims covering such Therapeutic Product or Diagnostic Product. Royalties will be payable on a Therapeutic Product-by-Therapeutic Product or Diagnostic Product-by-Diagnostic Product and country-by-country basis from the date of first commercial sale of a Therapeutic Product or Diagnostic Product in a country until the expiration of the last-to-expire Valid Claim of the Patent Rights covering such Therapeutic Product or Diagnostic Product in that country.

3.3 Sharing of Sublicensing Revenues. Tracr shall pay to EC […***…] of Sublicensing Revenues. Payments under this Section 3.3 with respect to Sublicensing Revenues received under a sublicense agreement with a given Third Party Sublicensee shall be payable until the expiration of the last-to-expire Valid Claim of the Patent Rights in all countries in which the sublicense under such Patent Rights has been granted.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

3.4 Payment by Affiliated Sublicensees. At Tracr's option, any sublicense agreement between Tracr and an Affiliated Sublicensee may provide for such Affiliated Sublicensee to pay directly to EC: (a) milestone payments in the amounts specified in Section 3.1 with respect to the achievement of the corresponding milestone events set forth in Section 3.1 by Therapeutic Products developed by or on behalf of such Affiliated Sublicensee; (b) royalties on Net Sales by such Affiliated Sublicensee (and its Sublicensees) of Therapeutic Products and Diagnostic Products at the rate set forth in Section 3.2; and (c) […***…] of the total Sublicensing Revenues received by such Affiliated Sublicensee; in each case, provided that Tracr shall remain responsible and liable to EC for compliance with Tracr's obligations under Sections 3.1, 3.2 and 3.3, respectively, with respect to such Affiliated Sublicensee.

3.5 Licenses Under Other EC Technology. The parties acknowledge that Tracr may, in the future, wish to obtain from EC licenses to one or more other inventions and discoveries (whether or not patentable) made by EC, either solely or with one or more co-inventors, including patent and other intellectual property rights covering such inventions and discoveries (collectively, ***"New EC Technology"***). The parties also acknowledge that EC is not under any obligation to grant licenses or any other right, title or interest in or to any New EC Technology to Tracr but shall consider any request from Tracr to obtain a license on a case by case basis, […***…]. Tracr and EC hereby agree that in the event that Tracr or its Sublicensees develops or commercializes any Therapeutic Product in the Tracr Field that is also covered by New EC Technology licensed by EC directly to Tracr under one or more separate license agreements (each, a ***"New License Agreement"***):

(a) in the case of a Therapeutic Product covered by New EC Technology, […***…] milestone payments shall be due and payable to EC with respect to such Therapeutic Product, which shall be the […***…]; and

(b) only […***…] shall be due and payable to EC with respect to any sale of a Therapeutic Product covered by any New EC Technology, which shall be calculated […***…].

Similarly, if Tracr or an Affiliated Sublicensee grants any sublicense under both the Technology and the New EC Technology, […***…] shall be due and payable to EC with respect to any item of sublicensing revenues received by Tracr or an Affiliated Sublicensee for such sublicense, which shall be calculated at the higher of (i) the rate set forth in Section 3.3 and (ii) the rate set forth in the New License Agreement(s).

Notwithstanding the foregoing, Tracr acknowledges that, to the extent EC is obligated to assign any or all of her rights in or to New EC Technology to a Third Party (*e.g.*, the institution of which she is an employee at the time such New EC Technology is created), EC may not have the right to grant Tracr a license (or an exclusive license) under such New EC Technology. Tracr further acknowledges that in such event, if Tracr wishes to obtain a license under such Third Party assignee's interest in such New EC Technology, the amounts payable by Tracr to such Third Party assignee would be negotiated between Tracr and such Third Party assignee and, if such Third Party assignee were willing to grant Tracr a license, such license would not be subject to the foregoing provisions of this Section 3.5.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4. PAYMENTS; REPORTS; AUDITS

4.1 Payment; Reports. Royalties under Section 3.2 and payments with respect to Sublicensing Revenues under Section 3.3 (collectively, ***"Revenue-Sharing Payments"***), including in each case any such Revenue-Sharing Payments made by an Affiliated Sublicensee to EC pursuant to Section 3.4, shall be calculated and reported for each calendar quarter and shall be paid within […***…] after the end of the calendar quarter. No later than the date any Revenue-Sharing Payments for a calendar quarter are due in accordance with the preceding sentence, Tracr and/or one or more Affiliated Sublicensees shall deliver to EC a report of (a) Net Sales of Therapeutic Products and Diagnostic Products by Tracr and Sublicensees and (b) Sublicensing Revenues received by Tracr and Affiliated Sublicensees in sufficient detail to permit confirmation of the accuracy of the Revenue-Sharing Payments made, including (i) gross sales and Net Sales of Therapeutic Products on a Therapeutic Product-by-Therapeutic Product and country-by-country basis, (ii) gross sales and Net Sales of Diagnostic Products on a Diagnostic Products on a Diagnostic Product-by-Diagnostic Product and country-by-country basis, (iii) the royalty payable, (iv) Sublicensing Revenues received on a Third Party Sublicensee-by-Third Party Sublicensee basis, and (v) the exchange rates used to calculate Revenue-Sharing Payments. All reports delivered to EC pursuant to this Section 4.1 shall be deemed Confidential Information of Tracr.

4.2 Manner and Place of Payment; Exchange Rate. All payment amounts specified in this Agreement are stated, and all payments hereunder shall be payable, in Swiss Francs (CHF). With respect to each quarter, whenever conversion of payments from any foreign currency into CHF shall be required, such conversion shall be made using the applicable exchange rate for such currency used throughout Tracr's or the applicable Affiliated Sublicensee's accounting system for the applicable quarter. All payments owed under this Agreement shall be made by wire transfer to a bank and account designated in writing by EC, unless otherwise specified in writing by EC.

4.3 Income Tax Withholding. EC will pay any and all taxes levied on account of any payments made to her under this Agreement. If any taxes are required to be withheld by Tracr or an Affiliated Sublicensee from any payment made to EC under this Agreement, Tracr or such Affiliated Sublicensee shall (a) deduct such taxes from the payment made to EC, (b) timely pay the taxes to the proper taxing authority, and (c) send proof of payment to EC and certify its receipt by the taxing authority within […***…] following such payment.

4.4 Audits. During the Term and for a period of […***…] thereafter, Tracr shall keep, and shall cause Sublicensees to keep, complete and accurate records pertaining to the sale or other disposition of Therapeutic Products and Diagnostic Products by Tracr and Sublicensees, and shall keep, and shall cause its Affiliated Sublicensees to keep, complete and accurate records pertaining to the receipt of Sublicensing Revenues by Tracr and its Affiliated Sublicensees, each in sufficient detail to permit EC to confirm the accuracy of all Revenue-Sharing Payments. EC shall have the right to cause an independent, certified public accountant reasonably acceptable to Tracr to audit such records to confirm Net Sales, Sublicensing Revenues and Revenue-Sharing Payments for a period covering not more than the preceding […***…] years. Tracr (or the Affiliated Sublicensee to be audited) may require such accountant to execute a reasonable confidentiality agreement prior to commencing the audit. Such audits may be conducted during

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

normal business hours upon reasonable prior written notice to Tracr, but no more frequently than once per year. No accounting period shall be subject to audit more than […***…] by EC. Prompt adjustments (including remittances of underpayments or overpayments disclosed by such audit) shall be made by the parties to reflect the results of such audit. […***…] shall bear the full cost of such audit unless such audit discloses an underpayment of […***…] or more of the amount of Revenue-Sharing Payments due under this Agreement, in which case Tracr shall bear the full cost of such audit. All records, documentation and other information made available by Tracr or an audited Affiliated Sublicensee to such independent auditor, or by Tracr, an audited Affiliated Sublicensee or such independent auditor to EC, pursuant to this Section 4.4 shall be deemed Confidential Information of Tracr.

4.5 Late Payments. In the event that any payment due under this Agreement is not made when due, such payment shall accrue interest, calculated on a daily basis, at the […***…] for the period from the due date for payment until the date of actual payment; *provided, however,* that in no event shall such rate exceed the maximum legal annual interest rate. The payment of such interest shall not limit EC from exercising any other rights she may have as a consequence of the lateness of any payment.

5. PATENT MATTERS

5.1 Joint Owners' Rights.

(a) The parties acknowledge that the Joint Owners and EC share rights to prosecute and maintain the Patent Rights, as confirmed by that certain letter from the U.S. Patent and Trademark Office (***"USPTO"***) to Regents and Regents' outside patent counsel dated June 17, 2013, granting EC's petition, filed on June 7, 2013, requesting that the USPTO accept a power of attorney appointing the attorneys of Goodwin Procter LLP as EC's own representatives and attorneys of record with respect to the Patent Application.

(b) Accordingly, the parties further acknowledge and agree that the following provisions of this Article 5 pertain only to the allocation between EC and Tracr of EC's rights to prosecute and maintain the Patent Rights, and not to the Joint Owners' rights to prosecute and maintain the Patent Rights and are granted by EC only to the extent that EC is able to grant such rights. The parties also acknowledge that EC and the Joint Owners have not, as at the Effective Date, reached any agreement between them concerning the prosecution, maintenance and/or enforcement of the Patent Rights and that the Joint Owners have not given EC any authority to undertake any of these activities independently.

5.2 ERS and CRISPR.

(a) Tracr acknowledges that concurrently with the execution of this Agreement:

(i) EC and ERS are entering into a license agreement pursuant to which EC has granted to ERS […***…];

(ii) EC and CRISPR are entering into a license agreement pursuant to which EC has granted to CRISPR an exclusive license under EC's joint ownership interest in and

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

to the Technology to research, develop, make, have made, use, sell, have sold, offer for sale and import Therapeutic Products in the CRISPR Field and Diagnostic Products for use with such Therapeutic Products, in the form attached hereto as **Exhibit D** (the ***"CRISPR License"***), and has delegated to CRISPR certain of her rights as joint owner of the Patent Rights with respect to prosecution, maintenance, defense and enforcement of the Patent Rights thereunder; and

(iii) the terms of this Agreement, the ERS License and the CRISPR License do not conflict, including, without limitation, the respective license grants.

(b) Subject to EC's compliance with Section 5.2(c) below, CRISPR shall be an intended third party beneficiary of the rights conferred on CRISPR under Sections 5.3, 5.4 and 5.5 (excluding Section 5.5(d)) of this Agreement with the right under the Contracts (Rights of Third Parties) Act 1999 to exercise such rights under the provisions of such Sections to the extent permitted by the CRISPR License and standing to enforce the provisions of such Sections against Tracr.

(c) EC shall neither amend nor modify the CRISPR License in any manner that would diminish the rights or interests of Tracr under the CRISPR License as set forth therein as of the Effective Date; except with the prior written consent of Tracr.

5.3 Patent Prosecution and Maintenance. For purposes of this Section 5.3, a party's right to prosecute and maintain a patent application or patent shall be deemed to include, without limitation, the right to control any interference, reexamination, reissue, opposition, derivation, *inter partes* review, post-grant review, revocation, nullification, cancellation or other post-grant proceeding (each, a ***"Patent Proceeding"***) with respect to such patent application or patent, and the right to seek patent term restorations, supplementary protection certificates and other forms of patent term extensions with respect thereto.

(a) Tracr acknowledges that EC has granted CRISPR the first right, but not the obligation, to control and manage the preparation, filing, prosecution and maintenance of the CRISPR Patent Rights and Overlapping Patent Rights, at its sole cost and expense and by counsel of its own choice.

(b) If CRISPR notifies EC and Tracr that CRISPR desires to abandon or cease prosecution or maintenance of any patent application or patent within the CRISPR Patent Rights in any country, Tracr may, by written notice to EC and CRISPR, elect to continue prosecution and/or maintenance of any such patent application or patent, at its cost and expense and choice of counsel.

5.4 Cooperation. Each party agrees to cooperate fully in the preparation, filing, prosecution and maintenance of CRISPR Patent Rights and Overlapping Patent Rights under Section 5.3. Such cooperation includes, but is not limited to: (i) executing all papers and instruments, or requiring its employees or contractors, to execute such papers and instruments, so as to enable the other party or CRISPR to apply for and to prosecute patent applications in any country as permitted by Section 5.3, including, without limitation, any power of attorney or similar instrument appointing the attorneys of any law firm selected by CRISPR as EC's representatives and attorneys of record with respect to the CRISPR Patent Rights or Overlapping

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Patent Rights and any petition or submission to the USPTO or any foreign patent office requesting that the USPTO or such foreign patent office accept the attorneys of such CRISPR-selected law firm as EC's representatives and attorneys of record with respect to the Patent Rights; (ii) promptly informing the other party and CRISPR of any matters coming to such party's attention that may affect the preparation, filing, prosecution or maintenance of Patent Rights; and (iii) providing, at the expense of the party (or CRISPR, if applicable) controlling and managing the preparation, filing, prosecution and maintenance of the Patent Rights any requested evidence or testimony, whether oral or written, in connection with the prosecution and maintenance of the Patent Rights, including any Patent Proceedings. Tracr shall be responsible for paying all EC's costs in assisting and cooperating with Tracr under this Section 5.4. Tracr acknowledges that any preparation, filing, prosecution and maintenance of Patent Rights will require co-operation between Tracr and the Joint Owners.

5.5 Infringement by Third Parties.

(a) In the event that either EC or Tracr becomes aware of any infringement or threatened infringement of the CRISPR Patent Rights in the CRISPR Field or Tracr Field by a Third Party of any Patent Right, such party shall promptly notify the other party in writing to that effect. Tracr acknowledges that, to the extent that it is legally permitted to do so, CRISPR has the first right to bring and control any action or proceeding with respect to infringement of any CRISPR Patent Right within the CRISPR Field or the Tracr Field, at its own expense and by counsel of its own choice, subject to Section 5.5(f) of this Agreement and Section 5.5(e) of the CRISPR License. If the infringement of the CRISPR Patent Rights relates to the Tracr Field, Tracr shall have the right if it chooses, to join the proceedings on its own accord, at its own expense, to be represented in any such action by counsel of its own choice, and to review and comment on any papers filed during such action. EC may, if she wishes, delegate the performance of any participation rights and activities under this Section 5.5(a) to ERS.

(b) If the infringement of the CRISPR Patent Rights is solely in the Tracr Field and not in the CRISPR Field, and CRISPR fails to bring any such action or proceeding with respect to infringement in the Tracr Field within (i) […***…] following the notice of alleged infringement or (ii) […***…] before the time limit, if any, set forth in the appropriate laws and regulations for the filing of such actions, whichever comes first, then Tracr shall have the right to bring and control any such action solely with respect to such infringement in the Tracr Field at its own expense and by counsel of its own choice. EC will at Tracr's expense join and cooperate fully in such action if EC is required to do so by Tracr and shall request that CRISPR shall join and cooperate fully in such action if and to the extent appropriate, all at Tracr's expense. Tracr shall keep EC and CRISPR fully informed and up to date with respect to such infringement actions and shall take into account any reasonable suggestions made by EC or CRISPR. EC shall have the right if she chooses, to join the proceedings on her own accord, at her own expense, to be represented in any such action by counsel of her own choice, and to review and comment on any papers filed during such action. EC may, if she wishes, delegate the performance of any participation rights and activities under this Section 5.5(b) to ERS.

(c) Tracr shall notify EC within […***…] of becoming entitled to bring an action or proceeding pursuant to Section 5.5(b) as to whether or not Tracr will bring such action or proceeding. If Tracr notifies EC that Tracr will not bring such an action, or if Tracr fails to

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

provide any notice to EC within such period, then EC shall have the right to bring and control any such action at her own expense and by counsel of her own choice. Tracr will at EC's expense join and cooperate fully in such action if Tracr is required to do so by EC. EC shall keep Tracr and CRISPR fully informed and up to date with respect to such infringement actions and shall take into account any reasonable suggestions made by Tracr or CRISPR. Each of Tracr and CRISPR shall have the right if it chooses, to join the proceedings on its own accord, at its own expense, to be represented in any such action by counsel of its own choice, and to review and comment on any papers filed during such action. Notwithstanding any other provision of this Article 5 to the contrary, EC's rights under this Section 5.5(c) shall be exercisable only by EC and may not be extended to ERS.

(d) In the event EC brings any infringement action in accordance with Section 5.5(c), Tracr shall cooperate fully, including, if required to bring such action, the furnishing of a power of attorney or being named as a party.

(e) Neither party shall have the right to settle any patent infringement litigation under this Section 5.5 without the prior written consent of the other party, which shall not be unreasonably withheld. Except as otherwise agreed by the parties in connection with a cost-sharing arrangement, any recovery realized by a party as a result of any action or proceeding pursuant to this Section 5.5, whether by way of settlement or otherwise, after reimbursement of any litigation expenses of the parties, shall be retained by the party that brought and controlled such action for purposes of this Agreement; *provided, however,* that any recovery realized by Tracr as a result of any action brought and controlled by Tracr pursuant to Section 5.5(b) with respect to infringement in the Tracr Field, after reimbursement of the parties' litigation expenses, shall be treated as Sublicensing Revenues for purposes of Section 3.3.

(f) To the extent that any infringement of the CRISPR Patent Rights or the Overlapping Patent Rights relates to both the CRISPR Field and the Tracr Field, Tracr shall agree a coordinated approach with CRISPR, and Tracr and CRISPR shall cooperate with respect to any enforcement proceedings. In respect of any proceedings brought by Tracr and CRISPR in cooperation as referred to in this Section 5.5(f), Tracr shall keep EC fully informed and up to date and shall take into account any reasonable suggestions made by EC.

(g) Defense of the validity or enforceability of any claim of the CRISPR Patent Rights asserted in an infringement action under this Section 5.5 shall be at the sole expense and control of the party bringing the infringement action, subject to the provisions of Article 9; and *provided*, *however,* that each party shall reasonably inform the other and CRISPR and consider the other's and CRISPR's input.

(h) For clarity, except as expressly set forth in Section 5.5(f), Tracr's enforcement rights under this Section 5.5 apply solely to CRISPR Patent Rights, and Tracr shall have no right to enforce Overlapping Patent Rights (other than in cooperation with CRISPR pursuant to Section 5.5(f)) or ERS Patent Rights.

5.6 Third Party Infringement Claims. Each party shall promptly notify the other party in writing of any allegation by a Third Party that the activity of either of the parties pursuant to this Agreement infringes or may infringe the intellectual property rights of such

Third Party. EC shall have the sole right to control any defense of any such claim involving alleged infringement of Third Party rights by EC's activities at her own expense and by counsel of her own choice. Tracr shall have the sole right to control any defense of any such claim involving alleged infringement of Third Party rights by Tracr's activities at its own expense and by counsel of its own choice. Neither party shall have the right to settle any patent infringement litigation under this Section 5.6 in a manner that diminishes the rights or interests of the other party or of CRISPR without the written consent of such other party and CRISPR (which shall not be unreasonably withheld).

5.7 Tracr Affiliates and Assignees. The parties agree that, at Tracr's discretion, Tracr's rights under this Article 5 may be exercised on behalf of Tracr by any Affiliated Sublicensee designated by Tracr from time to time.

5.8 Legal Inability to Exercise Rights. Tracr acknowledges that EC shall not be liable to Tracr if Tracr is unable as a matter of law to control filing, prosecution, maintenance, enforcement and defense of one or more of the Patent Rights in any country.

6. REPRESENTATIONS AND WARRANTIES; DISCLAIMER; LIMITATION OF LIABILITY

6.1 Mutual Representations and Warranties. Tracr represents and warrants to EC that: (a) Tracr is duly authorized to execute and deliver this Agreement and to perform Tracr's obligations hereunder; and (b) this Agreement is legally binding upon Tracr, enforceable in accordance with its terms, and does not conflict with any agreement, instrument or understanding, oral or written, to which Tracr is a party or by which Tracr may be bound. EC represents and warrants that this Agreement is legally binding upon EC, enforceable in accordance with its terms (subject to and without prejudice to the limitations in Section 2.3 and Section 5.1(b)) and does not conflict with any agreement, instrument or understanding, oral or written, to which EC is a party or by which EC may be bound.

6.2 EC Representations and Warranties. EC represents and warrants to Tracr as of the Effective Date that: (a) EC has not assigned, or agreed to assign, to Regents, Vienna or any other Third Party her interest in the Patent Rights; (b) EC has not licensed, assigned, transferred or otherwise disposed, or offered or agreed to assign, transfer or otherwise dispose, of any of her interest in or to, nor entered or agreed to enter into any contracts in relation to her interest in or to, any Patent Rights in the Tracr Field, and EC has not created or allowed to be created any lien or encumbrance on her interest in any Patent Rights in the Tracr Field (other than any of the foregoing that has expired or been terminated prior to the Effective Date and is of no further force or effect); and (c) EC has not received any notice alleging that the practice of the Technology infringes or misappropriates, or may infringe or misappropriate, any intellectual property rights of any Third Party. EC further represents and warrants to Tracr that she has obtained legal advice of independent legal counsel as to the legal effect of signing this Agreement and as regards the extent of her liability and the obligations which she is undertaking by signing this Agreement. In evidence of the foregoing, EC shall have delivered to Tracr, on or before the Effective Date, a Certificate of Independent Legal Advice in substantially the form set forth in **Exhibit E** hereto, executed by EC's legal advisor.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

6.3 EC Covenants. During the Term, EC hereby covenants: (a) not to assign, transfer or otherwise dispose, or offer or agree to assign, transfer or otherwise dispose, of any interest in or to, and not to enter, or offer or agree to enter, into any contract in relation to, any Technology in the Tracr Field, other than this Agreement and any Services Relationship with Tracr; and (b) not to create any lien or encumbrance on any Technology in the Tracr Field.

6.4 Disclaimer. Except as expressly set forth in this Agreement, EACH PARTY EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, VALIDITY OF PATENTS, NON-INFRINGEMENT OF THE INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICES. Without limiting the generality of the foregoing, EC specifically disclaims any express or implied warranty:

(a) as to the validity, enforceability or scope of any Patent Right; or

(b) that the exploitation of the Patent Rights or Technology will be successful.

6.5 Limitation of Liability.

(a) IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR ANY INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION DAMAGES FOR LOST PROFITS OR EXPECTED SAVINGS) ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR ITS SUBJECT MATTER; *provided, however,* that this Section 6.5 shall not be construed to limit Tracr's indemnification obligations under Article 9. No provision of this Agreement shall limit a party's liability for death or personal injury caused by its negligence or for fraud.

(b) THE TOTAL AGGREGATE LIABILITY OF EC IN RESPECT OF ANY CLAIM AND ALL CLAIMS ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT AND/OR ITS SUBJECT MATTER, INCLUDING TORTIOUS CLAIMS, WHICH ARE BROUGHT AGAINST EC IN ANY CALENDAR YEAR SHALL NOT EXCEED AN AMOUNT EQUAL TO THE TOTAL AMOUNT THAT EC RECEIVES FROM TRACR UNDER ARTICLE 3 OF THIS AGREEMENT AND UNDER ANY SERVICES RELATIONSHIP IN THE CALENDAR YEAR IN WHICH THE CLAIM OR CLAIMS ARE BROUGHT AGAINST EC.

7. CONFIDENTIALITY

7.1 Confidential Information. ***"Confidential Information"*** shall mean all scientific, regulatory, marketing, financial, and commercial information or data, whether communicated in written, oral, graphic, electronic or visual form, that is provided by one party (the ***"Disclosing Party"***) to the other party (the ***"Receiving Party"***) in connection with this Agreement. Except as expressly set forth in this Agreement or as otherwise agreed in writing by the parties, the Receiving Party shall keep strictly confidential, in accordance with the terms and conditions of this Article 7, the Disclosing Party's Confidential Information, shall use the Disclosing Party's

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Confidential Information solely as expressly authorized by this Agreement, and shall not disclose the Confidential Information to any Third Party without the prior written consent of the Disclosing Party. The Receiving Party shall use at least the same degree of care to protect the Disclosing Party's Confidential Information as the Receiving Party would use to protect the Receiving Party's own Confidential Information, but no less than reasonable care.

7.2 Exceptions. Confidential Information of the Disclosing Party shall not include information that the Receiving Party can demonstrate by competent evidence: (a) was in the public domain at the time of disclosure by the Disclosing Party; (b) later became part of the public domain through no act or omission of the Receiving Party in breach of this Agreement; (c) is lawfully disclosed to the Receiving Party on a non-confidential basis by a Third Party having the right to disclose it; or (d) was already known by the Receiving Party at the time of receiving such information from the Disclosing Party, as evidenced by the Receiving Party's pre-existing written records.

7.3 Authorized Disclosure. The Receiving Party may disclose Confidential Information as expressly permitted by this Agreement, or if and to the extent such disclosure is reasonably necessary in the following instances:

(a) filing, prosecuting or maintaining the Patent Rights in accordance with this Agreement;

(b) enforcing the Receiving Party's rights under this Agreement;

(c) prosecuting or defending litigation;

(d) complying with applicable court orders or governmental regulations;

(e) disclosure to the Receiving Party's financial, legal and other advisors on a need-to-know basis as necessary for such advisors to provide financial, legal or business advice to the Receiving Party regarding this Agreement or its subject matter, provided that such advisors are bound by non-use and non-disclosure obligations no less restrictive than those set forth in this Agreement, whether by written agreement or by applicable professional ethical obligations;

(f) in the case of Tracr, disclosure to Tracr's Affiliates (including, without limitation, Affiliated Sublicensees), provided that Confidential Information so disclosed shall remain subject to this Article 7;

(g) in the case of Tracr and Affiliated Sublicensees, disclosure to Third Party Sublicensees and *bona fide* potential Third Party Sublicensees, on the condition that each such Third Party agrees to be bound by confidentiality and non-use obligations that are no less stringent than the terms of this Agreement;

(h) in the case of Tracr (and Sublicensees), practicing the license granted hereunder or preparing and submitting regulatory filings with respect to Therapeutic Products and/or Diagnostic Products; and

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(i) in the case of Tracr and Affiliated Sublicensees, disclosure to Third Parties in connection with due diligence or similar investigations by such Third Parties and disclosure to potential Third Party investors in confidential financing documents, provided, in each case, that any such Third Party agrees to be bound by reasonable obligations of confidentiality and non-use.

Notwithstanding the foregoing, in the event the Receiving Party is required to make a disclosure of the other party's Confidential Information pursuant to Section 7.3(c) or Section 7.3(d), the Receiving Party shall, except where impracticable, give reasonable advance notice to the Disclosing Party of such disclosure and use efforts to secure confidential treatment of such information at least as diligent as such party would use to protect such party's own confidential information, but in no event less than reasonable efforts. In any event, the Receiving Party agrees to take all reasonable action to avoid unauthorized disclosure and unauthorized use of Confidential Information.

7.4 Confidentiality of Agreement. Except as otherwise provided in this Article 7, each party agrees not to disclose to any Third Party the terms or existence of this Agreement without the prior written consent of the other party hereto, except that each party may make such disclosure to the extent permitted under Section 7.3 and, after the initial announcement of this Agreement pursuant to Section 7.6, each party may disclose the terms of this Agreement that have previously been made public as contemplated by Section 7.6. Tracr acknowledges that EC is entitled to disclose the provisions of this Agreement to ERS and to CRISPR, on the condition that each of them agrees to be bound by confidentiality and non-use obligations that are no less stringent than the terms of this Agreement.

7.5 Publications. EC shall be free to make publications and presentations regarding the Technology, including oral presentations and abstracts, provided such publications and presentations do not contain or disclose Confidential Information of Tracr. Solely during the five-year period beginning on the Effective Date:

(a) in the case of any proposed oral presentation by EC regarding the Technology, EC shall inform Tracr of EC's proposed oral presentation in advance thereof; and

(b) Tracr shall have the right to review any written material proposed for publication by EC, such as by manuscript or abstract. Before any such written material is submitted for publication, EC shall deliver a reasonably complete draft to Tracr a reasonable period (at least […***…], but, in any event, no fewer than […***…]) prior to submitting the material to a publisher or initiating any other disclosure. If Tracr identifies any Confidential Information of Tracr contained in such written material, EC shall comply with Tracr's request to delete references to Tracr's Confidential Information in any such material.

Tracr (and its Sublicensees) shall at all times be free to make publications and presentations, including oral presentations and abstracts, relating to the development and commercialization of Therapeutic Products in the Tracr Field and Diagnostic Products for use with such Therapeutic Products and other commercial exploitation of the Technology by or on behalf of Tracr and its Sublicensees.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.6 Publicity. At Tracr's option, Tracr may issue an initial press release announcing this Agreement in form and substance reasonably acceptable to EC. It is further acknowledged that a party may desire or be required to issue one or more subsequent press releases relating to this Agreement or activities hereunder. The parties agree to consult with each other reasonably and in good faith with respect to the text and timing of any such press release prior to the issuance thereof, provided that EC may not unreasonably withhold consent to such releases, and that Tracr may issue such press releases as it determines, based on advice of counsel, are reasonably necessary to comply with applicable law or with the requirements of any stock exchange on which securities issued by Tracr or its Affiliated Sublicensees are traded. In the event of a required public announcement, to the extent practicable under the circumstances, the party making such announcement shall use commercially reasonable efforts to provide the other party with a copy of the proposed text of such announcement sufficiently in advance of the scheduled release to afford such other party a reasonable opportunity to review and comment upon the proposed text.

8. TERM; TERMINATION

8.1 Term. The term of this Agreement (the ***"Term"***) shall begin on the Effective Date and, unless earlier terminated in accordance with this Article 8, shall expire upon expiration of all Revenue-Sharing Payment obligations of Tracr under this Agreement.

8.2 Termination by Tracr At Will. Tracr shall have the right to terminate this Agreement at will at any time upon […***…] written notice to EC.

8.3 Termination for Breach. A party shall have the right to terminate this Agreement upon written notice to the other party if such other party is in material breach of this Agreement and, if capable of remedy, has not cured such breach within […***…] after notice from the terminating party requesting cure of the breach. Any such termination shall become effective at the end of such […***…] unless the breaching party has cured such breach prior to the end of such period. Any right to terminate under this Section 8.3 shall be stayed and the cure period tolled in the event that, during any cure period, the party alleged to have been in material breach shall have initiated dispute resolution in accordance with Article 10 with respect to the alleged breach, which stay and tolling shall continue until such dispute has been resolved in accordance with Article 10.

8.4 Termination for Patent Challenge. EC shall have the right to terminate this Agreement immediately upon written notice to Tracr if Tracr commences any interference or opposition proceeding with respect to, challenges the validity or enforceability of, or opposes any extension of, or the grant of a supplementary protection certificate with respect to, any of the Patent Rights.

8.5 Consequences of Expiration or Termination.

(a) Expiration. Upon expiration of this Agreement pursuant to Section 8.1, the license granted to Tracr under Section 2.1 shall survive such expiration and become royalty-free, fully-paid, non-exclusive, irrevocable and perpetual.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) Termination. Upon any termination of this Agreement pursuant to Section 8.2, Section 8.3 or Section 8.4, the license granted to Tracr under Section 2.1 shall terminate and revert to EC. Notwithstanding the foregoing, solely in the event of termination of this Agreement by Tracr or EC pursuant to Section 8.3 or by EC pursuant to Section 8.4 (but not termination of this Agreement by Tracr pursuant to Section 8.2):

(i) any sublicense granted by Tracr to any Affiliated Sublicensee in accordance with Section 2.4 that is then in effect (together with any and all further sublicenses granted by such Affiliated Sublicensee to any Third Party Sublicensee thereunder) shall remain in full force and effect, provided that such Affiliated Sublicensee: (A) is not then in material breach of its sublicense agreement; and (B) agrees to be bound to EC as such Affiliated Sublicensee's direct licensor under the terms and conditions of this Agreement (and not such sublicense agreement) as applicable to the Therapeutic Products and Diagnostic Products which are the subject of the sublicense agreement; provided that such Affiliated Sublicensee shall agree in writing that in no event shall EC be liable to such Affiliated Sublicensee for any actual or alleged breach of such sublicense agreement by Tracr. In addition, to the extent that any such Affiliated Sublicensee was exercising Tracr's rights under Article 5 at the time of termination of this Agreement as contemplated by Section 5.7, such Affiliated Sublicensee may continue to exercise such rights after such termination subject to the terms and conditions of this Agreement; and

(ii) any sublicense granted by Tracr directly to any Third Party Sublicensee in accordance with Section 2.4 that is then in effect (together with any and all further sublicenses granted by such Third Party Sublicensee to any further Third Party Sublicensee thereunder) shall remain in full force and effect, provided that such Third Party Sublicensee: (A) is not then in material breach of its sublicense agreement; and (B) agrees to be bound to EC as such Third Party Sublicensee's direct licensor under the terms and conditions of the sublicense agreement; provided that (1) such Third Party Sublicensee shall agree in writing that in no event shall EC be liable to such Third Party Sublicensee for any actual or alleged breach of such sublicense agreement by Tracr, (2) such sublicense agreement shall be subordinate and comply in all respects to the applicable provisions of this Agreement, and (3) EC shall not have any obligations to such Third Party Sublicensee other than EC's obligations to Tracr as set forth herein.

(c) Inventory. Upon any termination of this Agreement pursuant to Section 8.2, Section 8.3, Section 8.4, or Section 8.5, Tracr, and any Sublicensee whose sublicense was in effect as of immediately prior to such termination but did not remain in effect after termination as contemplated by Section 8.5(b)(i) or Section 8.5(b)(ii), as applicable, shall be entitled to finish any work-in-progress and to sell any completed inventory of Therapeutic Products and Diagnostic Products which remain on hand as of the date of the termination, for up to six (6) months after termination, subject to payment of royalties to EC in accordance with Section 3.2.

(d) Return of Confidential Information. Within […***…] following the expiration or termination of this Agreement, each party shall return to the other party, or destroy, upon the written request of the other party, any and all Confidential Information of the other party in such party's possession; *provided*, *however* that each party may retain one copy of the

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

other party's Confidential Information in such party's legal archives for the sole purpose of monitoring compliance with such party's obligations, enforcing such party's rights hereunder, and exercising such party's surviving rights hereunder.

8.6 Surviving Obligations. Neither expiration nor termination of this Agreement shall relieve either party of any obligation accruing prior to such expiration or termination. In addition, Section 3.2 (for the period specified in Section 8.5(c)) and Sections 2.1(c), 2.9, 4.3, 4.4, 4.5, 5.8, 6.4, 6.5, 7.1, 7.2, 7.3, 7.4, 8.5 and 8.6 and Articles 9, 10 and 11 shall survive any expiration or termination of this Agreement.

9. INDEMNIFICATION

9.1 Indemnification by Tracr. Tracr hereby agrees to save, defend, indemnify and hold harmless EC from and against any and all losses, damages, liabilities, expenses and costs, including reasonable legal expense and attorneys' fees (***"Losses"***), to which she may become subject as a result of any claim, demand, action or other proceeding by any person to the extent such Losses arise out of: (a) the gross negligence or willful misconduct of Tracr, its Affiliates and/or their respective officers, directors, employees, consultants and agents; (b) the breach by Tracr of any warranty, representation, covenant or agreement made by Tracr in this Agreement; (c) the practice by Tracr or Sublicensees of the license granted hereunder; or (d) the development, manufacture, use, handling, storage, sale or other disposition of any Therapeutic Product or Diagnostic Product by or on behalf of Tracr or Sublicensees; in each case, except to the extent such Losses result from the gross negligence or willful misconduct of EC or the breach by EC of any warranty, representation, covenant or agreement made by EC in this Agreement.

To the extent not already covered by Tracr's indemnification obligations under the first paragraph of this Section 9.1, Tracr further agrees hereby to save, defend, indemnify and hold harmless EC from and against any and all Losses to which she may become subject as a result of any claim, demand, action or other proceeding by any person (including without limitation Regents, Vienna or any person to whom either of them may have granted, or purported to grant, rights under the Patent Rights) relating to or arising out of: (i) EC entering into this License Agreement with Tracr and her grant of rights to Tracr; (ii) the exercise by Tracr of any of its rights under this Agreement; (iii) the filing, prosecution, maintenance, enforcement and/or defense by Tracr of the Patent Rights in relation to the Tracr Field; or (iv) EC bringing an infringement action under the Patent Rights or other Patent Proceedings at the request, under the direction, and in accordance with the instructions, of Tracr; in each case, except to the extent such Losses result from the gross negligence or willful misconduct of EC or the breach by EC of any warranty, representation, covenant or agreement made by EC in this Agreement.

9.2 Control of Defense. In the event EC seeks indemnification under Section 9.1, EC shall inform Tracr of a claim as soon as reasonably practicable after EC receives notice of the claim (it being understood and agreed, however, that the failure by EC to give notice of a claim as provided in this Section 9.2 shall not relieve Tracr of Tracr's indemnification obligation under this Agreement except and only to the extent that Tracr is actually damaged as a result of such failure to give notice), shall permit Tracr to assume direction and control of the defense of the claim (including the right to settle the claim solely for monetary consideration) using counsel reasonably satisfactory to EC, and shall cooperate as requested (at the expense of Tracr) in the

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

defense of the claim. If Tracr does not assume control of such defense within […***…] after receiving notice of the claim from EC, EC shall control such defense and, without limiting Tracr's indemnification obligations, Tracr shall reimburse EC for all costs, including reasonable attorney fees, incurred by EC in defending herself within […***…] after receipt of any invoice therefor from EC. The party not controlling such defense may participate therein at such party's own expense. The party controlling such defense shall keep the other party advised of the status of such action, suit, proceeding or claim and the defense thereof and shall consider recommendations made by the other party with respect thereto. EC shall not agree to any settlement of such action, suit, proceeding or claim without the prior written consent of Tracr, which shall not be unreasonably withheld, delayed or conditioned. Tracr shall not agree to any settlement of such action, suit, proceeding or claim or consent to any judgment in respect thereof that does not include a complete and unconditional release of EC from all liability with respect thereto, that imposes any liability or obligation on EC, that acknowledges fault by EC or that affects the rights of EC in the Patents Rights without the prior written consent of EC.

9.3 Insurance. During the term of this Agreement, Tracr shall maintain, and shall require Sublicensees to maintain, insurance of such types and in such amounts as are commercially reasonable in light of their respective activities hereunder.

9.4 English Law. No provision of this Agreement shall operate to:-

(a) exclude any provision implied into this Agreement by English law and which may not be excluded by English law; or

(b) limit or exclude any liability, right or remedy to a greater extent than is permissible under English law including in relation to (1) death or personal injury caused by the negligence of a party to this Agreement or (2) fraudulent misrepresentation or deceit.

10. DISPUTE RESOLUTION

10.1 Dispute Resolution. It is the desire of the parties that any dispute arising under or relating to the parties' rights and obligations under this Agreement be resolved amicably by good faith discussions between the parties. If a party delivers written notice to the other party of any such dispute, the parties shall promptly convene a meeting (either in person or by telephone conference or videoconference) to attempt in good faith to resolve such dispute.

10.2 Arbitration.

(a) LCIA Rules. Except as expressly set forth in Section 10.3, any dispute arising out of or in connection with this Agreement, including any question regarding its existence, validity or termination, that is not resolved by the parties within […***…] after a party's delivery to the other party of notice of such dispute shall, upon the written request of either party, be referred to and finally resolved by arbitration under the arbitration rules of the London Court of International Arbitration (the ***"Rules"***), which Rules are deemed to be incorporated by reference into this clause, except to the extent any such Rule conflicts with the express provisions of this Article 10. The arbitration shall be determined by a single, independent, impartial arbitrator. The seat, or legal place, of arbitration shall be London, England. The language to be used in the arbitral proceedings shall be English. The governing law of the contract shall be the substantive law of England, excluding its conflicts of laws principles.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) Expedited Binary Arbitration. Within […***…] following appointment of the arbitrator in accordance with the Rules, each party shall submit to the arbitrator so appointed a written proposal setting forth a complete resolution of the applicable dispute that such party believes is reasonable under the circumstances, including, without limitation, any economic remedy such party believes is justified. Within […***…] following submission of the parties' written proposals to the arbitrator, the arbitrator shall select the proposal that such arbitrator determines to be the more reasonable of the two. The decision of the arbitrator shall be final, binding and non-appealable, except in the case of manifest error and judgment may be entered upon it in any court of competent jurisdiction, and subject to the aforesaid, the parties hereby exclude any rights of application or appeal to any court to the extent that they may validly so agree and in particular in connection with any question of law.

(c) Arbitration Costs. The arbitrator shall determine the proportions in which the parties shall pay the costs of the arbitration procedure. The arbitrator shall have the authority to order that all or a part of the legal or other costs of a party incurred in relation to the arbitration shall be paid by the other party.

10.3 Court Actions. Nothing contained in this Agreement shall deny either party the right to seek injunctive or other equitable relief from a court of competent jurisdiction in the context of a *bona fide* emergency or prospective irreparable harm, and such an action may be filed and maintained notwithstanding any ongoing discussions between the parties or any ongoing arbitration proceeding. In addition, either party may bring an action in any court of competent jurisdiction to resolve disputes pertaining to the validity, construction, scope, enforceability, infringement or other violations of patent rights or other intellectual property rights, and no such claim shall be subject to arbitration pursuant to Section 10.2.

10.4 ERS and CRISPR. Notwithstanding any other provision of this Agreement:

(a) in the event that any dispute arises concerning (i) the scope of the licenses granted to Tracr as opposed to the scope of any licenses granted to ERS under the ERS License or (ii) the rights and obligations of Tracr under Article 5 as opposed to the rights and obligations of ERS under the ERS License, then Tracr shall not bring any action with EC as a party but instead Tracr and ERS shall each have the right to refer the dispute together to arbitration in order for the arbitrator to determine the extent of Tracr's and ERS's respective rights and obligations; and

(b) in the event that any dispute arises concerning (i) the scope of the licenses granted to Tracr as opposed to the scope of any licenses granted to CRISPR under the CRISPR License or (ii) the rights and obligations of Tracr under Article 5 as opposed to the rights and obligations of CRISPR under the CRISPR License, then Tracr shall not bring any action with EC as a party but instead Tracr and CRISPR shall each have the right to refer the dispute together to arbitration in order for the arbitrator to determine the extent of Tracr's and CRISPR's respective rights and obligations.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Any such arbitration shall be conducted in accordance with the principles set out in Section 10.2 above, subject to Section 10.3 above, save that Section 10.3 may not be used by Tracr to bring any action against EC. EC shall be entitled, but shall not be obliged, to participate as a party to any such arbitration, at her expense. ERS and CRISPR shall be intended third party beneficiaries under this Section 10.4 with the right under the Contracts (Rights of Third Parties) Act 1999 to enforce the provisions of this Section 10.4 against Tracr.

11. MISCELLANEOUS

11.1 Bankruptcy Code. All rights and licenses granted under or pursuant to this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of Title 11 of the United States Code and other similar laws in any jurisdiction outside the U.S. (collectively, the ***"Bankruptcy Laws"***), licenses of rights to be "intellectual property" as defined under the Bankruptcy Laws. All rights, powers and remedies of the non-bankrupt party as provided herein are in addition to and not in substitution for any and all other rights, powers and remedies now or hereafter existing at law or in equity (including, without limitation, the Bankruptcy Laws) in the event of the commencement of a case by or against a party under the Bankruptcy Laws.

11.2 Notices. All notices required or permitted to be given under this Agreement must be in writing and delivered by any method of mail (postage prepaid) requiring return receipt, by overnight courier, or by email, to the party to be notified at such party's address(es) given below, or at any address such party has previously designated by prior written notice to the other. Notice shall be deemed sufficiently given for all purposes upon the earliest of: (a) the date of actual receipt; (b) if mailed, three (3) days after the date of postmark; or (c) if delivered by overnight courier, the next business day the overnight courier regularly makes deliveries.

If to Tracr, notices must be addressed to:

Tracr Hemoglobinopathies Ltd
15 Fetter Lane
London EC4A 1JP
United Kingdom
Attention: Sally Shorthose
Email: […***…]

With a copy to:

Vischer AG
Aeschenvorstadt 4
Postfach 526
4010 Basel
Switzerland
Attention: Mathias Staehlin
Email: mstaehelin@vischer.com

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

If to EC, notices must be addressed to:

Emmanuelle Charpentier
[…***…]

With a copy to:

Bristows LLP
100 Victoria Embankment
London EC4Y 0DH
United Kingdom
Attention: Laura Anderson
Email: laura.anderson@bristows.com

11.3 Entire Agreement; Amendment. This Agreement, and the Exhibits attached hereto, contain the entire agreement and understanding between the parties with respect to the subject matter hereof, and merge all prior discussions, representations, and negotiations with respect to the subject matter of this Agreement. No amendment or modification hereof shall be valid or binding upon the parties hereto unless made in writing and signed by all parties hereto. The headings of clauses contained in this Agreement preceding the text of the sections, subsections and paragraphs hereof are inserted for convenience and ease of reference only and shall not constitute any part of this Agreement, or have any effect on its interpretation or construction. Ambiguities and uncertainties in this Agreement, if any, shall not be interpreted against any party, irrespective of which party may be deemed to have caused the ambiguity or uncertainty to exist.

11.4 Non-Waiver. The failure of a party to insist upon strict performance of any provision of this Agreement or to exercise any right or remedy arising out of this Agreement shall neither impair that provision or right nor constitute a waiver of that provision or right, in whole or in part, in that instance or in any other instance. Any waiver by a party of a particular provision, right or remedy shall be in writing, shall be as to a particular matter and, if applicable, for a particular period of time, and shall be signed by such party.

11.5 Assignment. Neither this Agreement nor any rights or obligations hereunder may be assigned or otherwise transferred by either party without the prior written consent of the other party; *provided*, *however*, that Tracr may assign this Agreement and its rights and obligations hereunder without EC's consent: (a) in connection with the transfer or sale of all or substantially all of Tracr's business to which this Agreement relates to a Third Party, whether by merger, sale of stock, sale of assets or otherwise; or (b) to an Affiliate. The rights and obligations of the parties under this Agreement shall be binding upon and inure to the benefit of the successors and permitted assigns of the parties, and the name of a party appearing herein will be deemed to include the name of such party's successors and permitted assigns to the extent necessary to carry out the intent of this section. Any assignment not in accordance with this Agreement shall be void.

11.6 Severability. In the event any provision of this Agreement is held to be illegal, invalid or unenforceable to any extent, the legality, validity and enforceability of the remainder of this Agreement shall not be affected thereby and shall remain in full force and effect and shall be enforced to the greatest extent permitted by law.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11.7 Choice of Law. This Agreement and any disputes arising out of or in connection with it including non-contractual disputes shall be governed by, and construed and enforced in accordance with, the laws of England, excluding its conflicts of laws principles.

11.8 Counterparts. This Agreement may be executed in any number of counterparts (including by electronic copy, facsimile or electronic signature), each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

11.9 Contracts (Rights of Third Parties) Act. Subject to the remaining provisions of this Section a person who is not a party to this Agreement has no rights (whether under the Contracts (Rights of Third Parties) Act 1999 or otherwise) to enforce any provision of this Agreement. CRISPR may enforce the provisions of Sections 2.9, 5.3, 5.4 and 5.5 (excluding Section 5.5(d)) of this Agreement to the extent set forth in, and subject to the terms of, such Sections and may enforce the provisions of Section 10.4 to the extent set forth in, and subject to the terms of, Section 10.4 and the provisions of the Contracts (Rights of Third Parties) Act 1999. Affiliated Sublicensees and Third Party Sublicensees may enforce the applicable provisions of Section 8.5(b) subject to the terms of Section 8.5(b) and the Contracts (Rights of Third Parties) Act 1999**.** The rights of the parties to terminate, rescind or agree any variation, waiver or settlement under this Agreement are not subject to the consent of any person that is not a party to this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the parties have executed this License Agreement as of the Effective Date.

EMMANUELLE MARIE CHARPENTIER

By: /s/ Emmanuelle Marie Charpentier

TRACR HEMOGLOBINOPATHIES LTD

By: /s/ Shaun Foy
Name: Shaun Foy
Title: Director

By: /s/ Rodger Novak
Name: Rodger Novak
Title: Director

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit A

Know-How

Protocols for carrying out the methods described in the Patent Rights.

[…***…] embodying any of the inventions claimed, or necessary or useful for carrying out the methods described, in the Patent Rights.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit B

Patent Rights

U.S. Patent Application No. 61/652,086

U.S. Patent Application No. 61/716,256

U.S. Patent Application No. 61/757,640

U.S. Patent Application No. 61/765,576

U.S. Patent Application No. 13/842,859

International Patent Application No. PCT/US2013/032589

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit C

ERS License

Attached.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit D

CRISPR License

Attached.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit E

[…***…]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

SPECIFIC TERMS IN THIS EXHIBIT HAVE BEEN REDACTED BECAUSE CONFIDENTIAL TREATMENT FOR THOSE TERMS HAS BEEN REQUESTED. THESE REDACTED TERMS HAVE BEEN MARKED IN THIS EXHIBIT WITH THREE ASTERISKS [***]. AN UNREDACTED VERSION OF THIS EXHIBIT HAS BEEN SEPARATELY FILED WITH THE SECURITIES AND EXCHANGE COMMISSION.

Exhibit 10.7

Execution Copy

PATENT ASSIGNMENT AGREEMENT

THIS PATENT ASSIGNMENT AGREEMENT ("**Agreement**") is entered into and effective as of 7th November 2014 (the "**Effective Date**"), by and between **EMMANUELLE MARIE CHARPENTIER**, an individual residing at Böcklerstrasse 18, 38102 Braunschweig, Germany ("**Ms Charpentier**"), **THE UNIVERSITY OF VIENNA**, having a principal place of business at Universitätsring 1, 1010 Vienna, Austria ("**Vienna**"), and **Ines Fonfara**, an individual residing at Helmstedter Strasse 144, 38102 Braunschweig, Germany ("**Ms Fonfara**") (collectively "**Assignor**"), and **CRISPR THERAPEUTICS AG**, a company organized under the laws of Switzerland having a principal place of business at Aeschenvorstadt 36, CH-4051 Basel, Switzerland ("**Assignee**").

BACKGROUND

WHEREAS, Assignee desires to obtain from Assignor, and Assignor desires to grant to Assignee, an assignment of the Patent Rights (defined below) on the terms and subject to the conditions set forth herein.

NOW, THEREFORE, in consideration of the premises and the mutual promises and covenants contained herein, the receipt and sufficiency of which are hereby acknowledged, Assignor and Assignee hereby agree as follows:

1. DEFINITIONS

1.1 "**Affiliate**" shall mean:

(a) any business entity which controls, is controlled by, or is under common control with Assignee; and for this purpose, a business entity shall be deemed to "control" another business entity, if it owns, directly or indirectly, more than 50% of the outstanding voting securities, capital stock, or other comparable equity or ownership interest of such business entity having the power to vote on or direct the affairs of such business entity; or

(b) any business entity that Assignee, at Assignee's sole option and upon written notice to Assignor, designates as an "Affiliate" for purposes of this Agreement, provided that, as of the date of such designation:

(i) Assignee has granted a sublicence to such entity under its licence from Ms Charpentier dated 15 April 2014; and

(ii) Ms Charpentier is the holder of […***…] percent or more of the equity securities of such business entity on a fully-diluted and as-converted basis.

1.2 "**Affiliated Licensee**" shall mean any Affiliate to which Assignee or its Affiliate directly or indirectly (*i.e.*, through multiple tiers of license) grants a license under any or all of the Patent Rights. For purposes of clarification, if, at any time after the grant of a license to an entity that is an Affiliate at the time of such grant, such entity ceases to be an Affiliate within the meaning of Section 1.1(a) or Section 1.1(b) (as applicable), such entity shall nevertheless continue to be considered an "Affiliated Licensee" (and shall not be considered a "Third Party Licensee") for purposes of this Agreement, including, without limitation, Article 3 hereof.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.3 "**Confidential Information**" shall have the meaning provided in Section 7.1.

1.4 "**Human Therapeutic Product**" means a Product for the treatment or prevention of any disease, disorder or condition in humans (including, without limitation, any such Product comprising human or animal cells for transplantation into a human to replace or repair damaged tissue).

1.5 "**Investigational New Drug Application**" means an investigational new drug application made to the U.S. Food and Drug Administration ("**FDA**"), or an equivalent application made in any other country.

1.6 "**Licensee**" shall mean an Affiliated Licensee and/or Third Party Licensee, as applicable.

1.7 "**Licensing Revenues**" shall mean all amounts received by Assignee or any of its Affiliated Licensees from any Third Party Licensee in consideration of the grant by Assignee or its Affiliated Licensee of a license under any or all of the Patent Rights, including, […***…], and any other payments with respect to such license; but excluding:

[…***…].

[…***…]

1.8 "**Net Sales**" shall mean the gross amounts invoiced by Assignee and its Licensees to Third Parties (other than Third Party Licensees) from sales of Products, less the following items, to the extent allocable to such Products and either included in the invoice, or otherwise actually granted, allowed, taken or incurred (if not previously deducted from the amount invoiced): […***…].

[…***…]

1.9 "**Other Product**" means any Product which is not a Human Therapeutic Product.

1.10 "**Patent Application**" shall mean U.S. Patent Application No. 61/905,835, filed on November 18, 2013.

1.11 "**Patent Rights**" shall mean the Patent Application; any and all patent applications that claim priority to the Patent Application, including, without limitation, continuations, continuations-in-part (but only to the extent the claims of any such continuation-in-part are specifically directed to subject matter disclosed in the specifications in, and entitled to the priority date of, the parent application), divisional applications and substitute applications; any and all patents issuing on any of the foregoing patent applications, including registrations, renewals, reexaminations, reissues, extensions, term restorations and supplementary protection certificates; and any and all foreign counterparts of any of the foregoing; in each case, whether now existing or hereafter filed or issued.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.12 "**Phase 2 Trial**" shall mean a human clinical trial that would satisfy the requirements for a Phase 2 study as defined in 21 CFR § 312.21(b) (or its successor regulation), regardless of where such trial is conducted.

1.13 "**Phase 3 Trial**" shall mean a human clinical trial that would satisfy the requirements for a Phase 3 study as defined in 21 CFR § 312.21(c) (or its successor regulation), regardless of where such trial is conducted.

1.14 "**Product**" shall mean any product which:

(a) contains or incorporates any product, the manufacture, use, sale or importation of which in a country would, in the absence of the assignment of the Patent Rights under this Agreement (or a license granted thereunder, as applicable), infringe a Valid Claim of the Patent Rights in such country; or

(b) uses any process or method, the use or practice of which in a country would, in the absence of the assignment of the Patent Rights under this Agreement (or a license granted thereunder, as applicable), infringe a Valid Claim of the Patent Rights in such country.

1.15 "**Regulatory Approval**" means with respect to any Human Therapeutic Product in any regulatory jurisdiction, approval from the applicable regulatory authority sufficient for the manufacture, distribution, use and sale of the Human Therapeutic Product in such regulatory jurisdiction in accordance with applicable laws (including any necessary pricing and reimbursement approvals required for sale).

1.16 "**Revenue-Sharing Payments**" shall have the meaning provided in Section 4.1.

1.17 "**Term**" shall have the meaning provided in Section 8.1.

1.18 "**Third Party**" shall mean any entity other than Assignor, Assignee and any Affiliate.

1.19 "**Third Party Licensee**" shall mean any Third Party to which Assignee or its Affiliated Licensee has directly or indirectly *(i.e.*, through multiple tiers of sublicense) granted a license under any or all of the Patent Rights. For clarification, a Third Party service provider that has the right to make, have made, use or sell Products solely on behalf of Assignee or its Affiliated Licensee and not for its own account shall not be considered a Third Party Licensee.

1.20 "**Valid Claim**" shall mean a claim contained in: (a) an issued and unexpired patent which has not been held unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through abandonment, reissue, disclaimer or otherwise; or (b) a patent application that has not been irretrievably cancelled, withdrawn or abandoned and that has been pending for less than […***…].

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2. ASSIGNMENT

2.1 Pursuant to and for the consideration set out in Section 3 below, Assignor hereby assigns to Assignee, absolutely with full title guarantee, all right, title and interest in and to the Patent Rights, and in and to all and any inventions claimed in the Patent Application, including:

(a) in respect of any and each application in the Patent Rights:

(i) the right to claim priority from and to prosecute and obtain grant of patent; and

(ii) the right to file divisional applications based thereon and to prosecute and obtain grant of patent on each and any such divisional application;

(b) in respect of each and any invention disclosed in the Patent Rights, the right to file an application, claim priority from such application, and prosecute and obtain grant of patent or similar protection in or in respect of any country or territory in the world;

(c) the right to extend to or register in or in respect of any country or territory in the world each and any of the Patent Rights, and each and any of the applications comprised in the Patent Rights or filed as aforesaid, and to extend to or register in, or in respect of, any country or territory in the world any patent or like protection granted on any of such applications;

(d) the absolute entitlement to any patents granted pursuant to any of the applications comprised in the Patent Rights or filed as aforesaid; and

(e) the right to bring, make, oppose, defend, appeal proceedings, claims or actions and obtain relief (and to retain any damages recovered) in respect of any infringement, or any other cause of action arising from ownership, of any of the Patent Rights or any patents granted on any of the applications in the Patent Rights or filed as aforesaid, whether occurring before on or after the date of this agreement, at its own expense and by counsel of its own choice.

2.2 For avoidance of doubt, the Assignment does not relate to any rights in US patent applications 61/652,086, 61/716,256, 61/757,640, 61/765,576, 13/842,859 or any patents claiming priority from those applications.

2.3 Diligence; Progress Reports.

(a) Assignee shall use commercially reasonable efforts and due diligence, itself and/or through one or more Licensees, to develop, and to obtain regulatory approval to market, at least one Product, as promptly as is reasonably and commercially feasible.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Without limiting the generality of the foregoing, Assignee, itself and/or through one or more Affiliated Licensees, shall:

(i) use commercially reasonable efforts to commercially exploit the Patent Rights (including, without limitation, by licensing); and

(ii) use commercially reasonable efforts to file, or cause to be filed, an Investigational New Drug Application for a Human Therapeutic Product within seven years after the Effective Date.

(b) Assignee shall keep Assignor informed as to progress with respect to the development of Products (whether by Assignee or its Licensees), including, without limitation, the conduct of clinical trials, regulatory submissions and approvals, manufacturing arrangements, marketing activities and sublicensing, and shall deliver to Assignor a written annual report summarizing such progress by January 31 of each year, beginning January 31, 2016. For clarification, Assignee's reporting obligations under this Section 2.3(b) are in addition to Assignee's reporting obligations under Section 4.1. The contents of Assignee's progress reports to Assignor shall be deemed to be Assignee's Confidential Information.

2.4 Reservation of Rights. Assignor reserves the non-transferable right, without the right to license or sublicense, to use the Patent Rights for its own non-commercial, educational and research purposes and in research collaborations with academic or non-profit partners.

3. PAYMENTS

3.1 Signature Payment. Within […***…] of the Effective Date, Assignee shall pay to Assignor a non-creditable, non-refundable, one-time fee of €[…***…].

3.2 Milestone Payments. Within […***…] after the first achievement by Assignee or a Licensee of each of the following milestone events by the first Human Therapeutic Product, Assignee shall provide written notice to Assignor of the occurrence of such event. Where the milestone event is achieved by Assignee, Assignee shall pay to Assignor the corresponding milestone payment set forth below. Where the milestone event is achieved by a Licensee, Assignee shall pay to Assignor the difference between the corresponding payment set forth below and the amount payable by Assignee to Assignor in accordance with Section 3.5 below as a result of Assignee's receipt of any milestone payment from the Licensee for the achievement of that milestone event, if the amount payable under Section 3.5 is lower.

Milestone Event	Payment
Filing of an Investigational New Drug Application	€ […***…]
Enrollment of the first patient into a Phase 2 Trial	€ […***…]
Enrollment of the first patient into a Phase 3 Trial	€ […***…]
Regulatory Approval by the U.S. FDA	€ […***…]
Regulatory Approval by the European Medicines Agency	€ […***…]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Each of the foregoing milestone payments shall be payable only one time (regardless of the number of Human Therapeutic Products developed and the number of times the first Human Therapeutic Product achieves such milestone).

3.3 Minimum Annual Royalty. For the period comprising the first four calendar quarters commencing after the Effective Date and for each subsequent period comprising the first four calendar quarters commencing after every anniversary of the Effective Date during the Term, Assignee shall pay to Assignor a minimum annual royalty payment of €[…***…]provided that Assignee may deduct from such minimum annual royalty payment any royalty payments paid to Assignor pursuant to Section 3.4 on sales in such four calendar quarters. Each minimum annual royalty payment, to the extent not reduced to zero by the deductions above shall be due and payable within […***…] after the end of the fourth calendar quarter for each period, together with any royalty due pursuant to Section 3.4 on sales in the fourth calendar quarter.

3.4 Royalties. Assignee shall pay to Assignor a royalty equal to:

(a) […***…] of Net Sales of Other Products by Assignee and its Affiliates and Licensees, provided that, solely in respect of Net Sales made by a Third Party Licensee, if the royalty rate at which such Third Party Licensee is obligated to pay royalties to Assignee or an Affiliated Licensee (as applicable) is less than […***…], then, in lieu of paying a […***…] royalty Assignee shall pay […***…] of the royalty payments that Assignee or its Affiliated Licensee (as applicable) receives from such Third Party Licensee.

(b) […***…] of Net Sales of Human Therapeutic Products by Assignee and its Affiliates and Licensees until such time as annual Net Sales first exceeds […***…], and […***…] on Net Sales thereafter. For the avoidance of doubt, for the year in which Net Sales first exceeds […***…], the Assignee shall pay a royalty of […***…] on the first […***…], and […***…] on the remaining Net Sales during that year.

Only one royalty payment shall be due under this Agreement with respect to a sale of a Product, regardless of the number of Valid Claims covering such Product. Royalties will be payable on a Product-by-Product and country-by-country basis from the date of first commercial sale of a Product in a country until the expiration of the last-to-expire Valid Claim of the Patent Rights covering such Product in that country.

3.5 Sharing of Licensing Revenues. Assignee shall pay to Assignor […***…] of Licensing Revenues. Payments under this Section 3.5 with respect to Licensing Revenues received under a license agreement with a given Third Party Licensee shall be payable until the expiration of the last-to-expire Valid Claim of the Patent Rights in all countries in which the license under such Patent Rights has been granted.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

3.6 Payment by Affiliated Licensees. At Assignee's option, any license agreement between Assignee and an Affiliated Licensee may provide for such Affiliated Licensee to pay directly to Assignor: (a) milestone payments in the amounts specified in Section 3.2 with respect to the achievement of the corresponding milestone events set forth in Section 3.2 by Human Therapeutic Products developed by or on behalf of such Affiliated Licensee; (b) royalties on Net Sales by such Affiliated Licensee (and its sublicensees) of Products at the rate set forth in Section 3.4; and (c) […***…] of the total Licensing Revenues received by such Affiliated Licensee; in each case, provided that Assignee shall remain responsible and liable to Assignor for compliance with Assignee's obligations under Sections 3.2, 3.4 and 3.5, respectively, with respect to such Affiliated Licensee.

3.7 Credit for Third Party Royalties. If Assignee or a Licensee is required to obtain a license under patent rights of a Third Party in order to manufacture, use, sell or import a Product, […***…] of the royalties actually paid to such Third Party shall be creditable, on a country-by-country basis, against the royalties on Net Sales due by Assignee to Assignor provided, however, that in no event shall the amounts owed by Assignee to Assignor with respect to Net Sales in a country be reduced by more than […***…]. Furthermore, the Minimum Annual Royalty payable under Section 3.3 will not be affected by anything in this Section.

3.8 Licenses Under Other Assignor Technology. The parties acknowledge that Assignee has in the past obtained a license from Ms Charpentier and may, in the future, wish to obtain from Assignor licenses or assignments of Assignor's interest in […***…] ("**Other Assignor Technology**"). The parties also acknowledge that Assignor is not under any obligation to grant licenses or any other right, title or interest in or to Other Assignor Technology to Assignee but shall consider any request from Assignee to obtain a license or assignment on a case by case basis, in its absolute discretion. Assignee and Assignor hereby agree that in the event that Assignee or its Licensees develops or commercializes any Product that is also covered by the Other Assignor Technology licensed or assigned by Assignor or any of Ms Charpentier, Ms Fonfara or Vienna directly to Assignee under a separate license agreement (an "**Other License Agreement**"):

(a) in the case of a Human Therapeutic Product covered by Other Assignor Technology, only one set of milestone payments shall be due and payable to Assignor (and Ms Charpentier, Ms Fonfara and Vienna shall be due their individual share of only one such payment) with respect to such Human Therapeutic Product, which shall be the higher (in the aggregate) of (i) the milestone payments set forth Section 3.2 (if applicable) and (ii) the milestone payments set forth in the Other License Agreement;

(b) only one royalty payment shall be due and payable to Assignor (and Ms Charpentier, Ms Fonfara and Vienna shall be due their individual share of only one such payment) with respect to any sale of a Product covered by any Other Assignor Technology, which shall be calculated at the higher of (i) the royalty rate set forth in Section 3.4 and (ii) the royalty rate set forth in the Other License Agreement;

(c) if Assignee or an Affiliated Licensee grants any license under both the Patent Rights and the Other Assignor Technology, only one payment shall be due and

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

payable to Assignor (and Ms Charpentier, Ms Fonfara and Vienna shall be due their individual share of only one such payment) with respect to any item of licensing revenues received by Assignee or an Affiliated Licensee for such license, which shall be calculated at the higher of (i) the rate set forth in Section 3.5 and (ii) the rate set forth in the Other License Agreement.

Where any of (a) to (c) above applies and a payment has been made to any of Ms Charpentier, Ms Fonfara or Vienna under the Other License Agreement, the amount already paid will be deducted from that party's share of the payments owed to Assignor under this Agreement. For the avoidance of doubt, nothing in this Section 3.8 shall increase the amount due to Assignor under Section 3.3.

4. PAYMENTS; REPORTS; AUDITS

4.1 Payment; Reports. Royalties under Section 3.4 and payments with respect to Licensing Revenues under Section 3.5 (collectively, "**Revenue-Sharing Payments**"), including in each case any such Revenue-Sharing Payments made by an Affiliated Licensee to Assignor pursuant to Section 3.6 (and taking into account any credit for third party royalties pursuant to Section 3.7), shall be calculated and reported for each calendar quarter and shall be paid within […***…] after the end of the calendar quarter. No later than the date any Revenue-Sharing Payments for a calendar quarter are due in accordance with the preceding sentence, Assignee and/or one or more Affiliated Licensees shall deliver to Assignor a report of (a) Net Sales of Products by Assignee and Licensees and (b) Licensing Revenues received by Assignee and Affiliated Licensees in sufficient detail to permit confirmation of the accuracy of the Revenue-Sharing Payments made, including (i) gross sales and Net Sales of Products on a Product-by-Product and country-by-country basis, (ii) the royalty payable, (iii) Licensing Revenues received on a Third Party Licensee-by-Third Party Licensee basis, and (iv) the exchange rates used to calculate Revenue-Sharing Payments. All reports delivered to Assignor pursuant to this Section 4.1 shall be deemed Confidential Information of Assignee. At the same time, the Assignee shall deliver to Assignor a report listing the identity of Affiliated Licensees and Third Party Licensees with whom a license agreement was signed or terminated in the preceding quarter.

4.2 Manner and Place of Payment; Exchange Rate. All payment amounts specified in this Agreement are stated, and all payments hereunder shall be payable, in Euros (€) and net of (i) any fees or charges associated with bank transfers; and (ii) any sales, value added, or equivalent taxes. With respect to each quarter, whenever conversion of payments from any foreign currency into Euros shall be required, such conversion shall be made using the applicable exchange rate for such currency used throughout Assignee's or the applicable Affiliated Licensee*s accounting system for the applicable quarter. All payments owed under this Agreement shall be split equally among Ms Charpentier, Vienna, and Ms Fonfara, and made by wire transfer to the banks and accounts designated in writing by Assignor, unless otherwise specified in writing by Assignor.

4.3 Income Tax Withholding. Assignor will pay any and all taxes levied on account of any payments made to it under this Agreement. If any taxes are required by law to be withheld by Assignee or an Affiliated Licensee from any payment made to Assignor under this Agreement, Assignee or such Affiliated Licensee shall notify Assignor in writing giving details

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

of the proposed withholding and shall cooperate with the Assignor in order to reduce or eliminate any such proposed withholding to the extent reasonably possible. If despite such cooperation any taxes are required by law to be withheld by Assignee or an Affiliated Licensee from any payment made to Assignor under this Agreement, Assignee or such Affiliated Licensee shall (a) deduct such taxes from the payment made to Assignor, (b) timely pay the taxes to the proper taxing authority, and (c) send proof of payment to Assignor and certify its receipt by the taxing authority within […***…] following such payment.

4.4 Audits. During the Term and for a period of […***…] thereafter, Assignee shall keep, and shall cause Licensees to keep, complete and accurate records pertaining to the sale or other disposition of Products by Assignee and Licensees, and shall keep, and shall cause its Affiliated Licensees to keep, complete and accurate records pertaining to the receipt of Licensing Revenues by Assignee and its Affiliated Licensees, each in sufficient detail to permit Assignor to confirm the accuracy of all Revenue-Sharing Payments. Assignor shall have the right to cause an independent, certified public accountant reasonably acceptable to Assignee to audit such records to confirm Net Sales, Licensing Revenues and Revenue-Sharing Payments for a period covering not more than the preceding […***…]. Assignee (or the Affiliated Licensee to be audited) may require such accountant to execute a reasonable confidentiality agreement prior to commencing the audit. Such audits may be conducted during normal business hours upon reasonable prior written notice to Assignee, but no more frequently than […***…]. If Assignor discovers an underpayment of more than […***…] in the course of an audit, Assignor will thereafter be entitled to conduct audits more frequently than once per year. Prompt adjustments (including remittances of underpayments or overpayments disclosed by such audit) shall be made by the parties to reflect the results of such audit. […***…] shall bear the full cost of such audit unless such audit discloses an underpayment of […***…] or more of the amount of Revenue-Sharing Payments due under this Agreement, in which case Assignee shall bear the full cost of such audit. All records, documentation and other information made available by Assignee or an audited Affiliated Licensee to such independent auditor, or by Assignee, an audited Affiliated Licensee or such independent auditor to Assignor, pursuant to this Section 4.4 shall be deemed Confidential Information of Assignee.

4.5 Late Payments. In the event that any payment due under this Agreement is not made when due, such payment shall accrue interest, calculated on a daily basis, at the […***…] for the period from the due date for payment until the date of actual payment; *provided*, *however*, that in no event shall such rate exceed the maximum legal annual interest rate. The payment of such interest shall not limit Assignor from exercising any other rights it may have as a consequence of the lateness of any payment.

5. PATENT MATTERS

5.1 Patent Prosecution and Maintenance. For the avoidance of doubt Assignee shall have the sole right to control and manage the preparation, filing, prosecution and maintenance of the Patent Rights at its sole cost and expense and by counsel of its own choice. Assignee shall keep Assignor reasonably informed of progress with regard to the preparation, filing, prosecution and maintenance of such Patent Rights and shall consult with, and consider in good faith its requests and suggestions with respect to strategies for filing and prosecuting the Patent Rights.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

5.2 Further Assurance. At Assignee's expense, the Assignor shall, and shall use all reasonable endeavours to procure that any necessary third party shall, promptly execute such documents and perform such acts as may reasonably be required for the purpose of giving full effect to this Agreement, including:

(a) registration of the Assignee as applicant for, or proprietor of, the Patent Rights; and

(b) assisting the Assignee in obtaining, defending and enforcing the Patent Rights, and assisting with any other proceedings which may be brought by or against the Assignee against or by any Third Party relating to the rights assigned by this Agreement.

5.3 Infringement by **Third Parties**. Assignee shall have the sole right to bring and control any action or proceeding with respect to infringement of any Patent Rights, at its own expense and by counsel of its own choice. Each party shall promptly notify the other party in writing of any allegation by a Third Party that the activity of either of the parties pursuant to this Agreement infringes or may infringe the intellectual property rights of such Third Party.

5.4 Registration. The parties shall enter into the confirmatory assignments attached to this Agreement at Schedule 1 for the purpose of recording the assignment of the Patent Rights at relevant patent offices throughout the world.

6. REPRESENTATIONS AND WARRANTIES; DISCLAIMER; LIMITATION OF LIABILITY

6.1 Mutual Representations and Warranties. Assignee represents and warrants to Assignor that: (a) Assignee is duly authorized to execute and deliver this Agreement and to perform Assignee's obligations hereunder; and (b) this Agreement is legally binding upon Assignee, enforceable in accordance with its terms, and does not conflict with any agreement, instrument or understanding, oral or written, to which Assignee is a party or by which Assignee may be bound. Assignor represents and warrants that this Agreement is legally binding upon Assignor, enforceable in accordance with its terms and does not conflict with any agreement, instrument or understanding, oral or written, to which Assignor is a party or by which Assignor may be bound.

6.2 Assignor Warranties.

(a) Vienna represents and warrants that:

(i) Vienna is the sole legal and beneficial owner of its rights under the Patent Rights;

(ii) Vienna has not assigned or licensed any of its rights under the Patent Rights;

(iii) so far as it is aware, each of the Patent Rights is free from any security interest, option, mortgage, charge or lien with respect to the Assignor;

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(iv) it is unaware of any infringement or likely infringement of, or any challenge or likely challenge to the validity of, any of the Patent Rights or of anything that might render any of the Patent Rights invalid or subject to a compulsory licence order or prevent any application in the Patent Rights proceeding to grant; and

(v) so far as it is aware, all previous assignments of the Patent Rights are valid and were registered within applicable time limits.

(b) Ms Charpentier represents and warrants that:

(i) She is the sole legal and beneficial owner of her rights under the Patent Rights;

(ii) She has not assigned or licensed any of her rights under the Patent Rights;

(iii) so far as she is aware, each of the Patent Rights is free from any security interest, option, mortgage, charge or lien with respect to the Assignor;

(iv) she is unaware of any infringement or likely infringement of, or any challenge or likely challenge to the validity of, any of the Patent Rights or of anything that might render any of the Patent Rights invalid or subject to a compulsory licence order or prevent any application in the Patent Rights proceeding to grant; and

(v) so far as she is aware, all previous assignments of the Patent Rights are valid and were registered within applicable time limits.

(c) Ms Fonfara represents and warrants that:

(i) She is the sole legal and beneficial owner of her rights under the Patent Rights;

(ii) She has not assigned or licensed any of her rights under the Patent Rights;

(iii) so far as she is aware, each of the Patent Rights is free from any security interest, option, mortgage, charge or lien with respect to the Assignor;

(iv) she is unaware of any infringement or likely infringement of, or any challenge or likely challenge to the validity of, any of the Patent Rights or of anything that might render any of the Patent Rights invalid or subject to a compulsory licence order or prevent any application in the Patent Rights proceeding to grant; and

(v) so far as she is aware, all previous assignments of the Patent Rights are valid and were registered within applicable time limits.

6.3 Disclaimer. Except as expressly set forth in this Agreement, EACH PARTY EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF ANY KIND,

EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, VALIDITY OF PATENTS, NON-INFRINGEMENT OF THE INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICES. Without limiting the generality of the foregoing, Assignor specifically disclaims any express or implied warranty:

(a) as to the validity, enforceability or scope of any Patent Right; or

(b) that the exploitation of the Patent Rights will be successful.

6.4 Limitation of Liability. IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR ANY INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION DAMAGES FOR LOST PROFITS OR EXPECTED SAVINGS) ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR ITS SUBJECT MATTER; *provided*, *however,* that this Section 6.4 shall not be construed to limit Assignee's indemnification obligations under Article 9. No provision of this Agreement shall limit a party's liability for death or personal injury caused by its negligence or for fraud.

7. Confidentiality

7.1 Confidential Information. "**Confidential Information**" shall mean all scientific, regulatory, marketing, financial, and commercial information or data, whether communicated in written, oral, graphic, electronic or visual form, that is provided by one party (the "**Disclosing Party**") to the other party (the "**Receiving Party**") in connection with this Agreement. Except as expressly set forth in this Agreement or as otherwise agreed in writing by the parties, the Receiving Party shall keep strictly confidential, in accordance with the terms and conditions of this Article 7, the Disclosing Party's Confidential Information, shall use the Disclosing Party's Confidential Information solely as expressly authorized by this Agreement, and shall not disclose the Confidential Information to any Third Party without the prior written consent of the Disclosing Party. The Receiving Party shall use at least the same degree of care to protect the Disclosing Party's Confidential Information as the Receiving Party would use to protect the Receiving Party's own Confidential Information, but no less than reasonable care. For the avoidance of doubt, any Confidential Information relating to the Patent Rights, and any inventions disclosed in the Patent Rights, shall be deemed to be Assignee's Confidential Information.

7.2 Exceptions. Confidential Information of the Disclosing Party shall not include information that the Receiving Party can demonstrate by competent evidence: (a) was in the public domain at the time of disclosure by the Disclosing Party; (b) later became part of the public domain through no act or omission of the Receiving Party in breach of this Agreement; (c) is lawfully disclosed to the Receiving Party on a non-confidential basis by a Third Party having the right to disclose it; or (d) was already known by the Receiving Party at the time of receiving such information from the Disclosing Party, as evidenced by the Receiving Party's pre-existing written records.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.3 Authorized Disclosure. The Receiving Party may disclose Confidential Information as expressly permitted by this Agreement, or if and to the extent such disclosure is reasonably necessary in the following instances:

(a) filing, prosecuting or maintaining the Patent Rights in accordance with this Agreement;

(b) enforcing the Receiving Party's rights under this Agreement;

(c) prosecuting or defending litigation;

(d) complying with applicable court orders or governmental regulations;

(e) disclosure to the Receiving Party's financial, legal and other advisors on a need-to-know basis as necessary for such advisors to provide financial, legal or business advice to the Receiving Party regarding this Agreement or its subject matter, provided that such advisors are bound by non-use and non-disclosure obligations no less restrictive than those set forth in this Agreement, whether by written agreement or by applicable professional ethical obligations;

(f) in the case of Assignee, disclosure to Assignee's Affiliates (including, without limitation, Affiliated Licensees), provided that Confidential Information so disclosed shall remain subject to this Article 7;

(g) in the case of Assignee and Affiliated Licensees, disclosure to Third Party Licensees and *bona fide* potential Third Party Licensees, on the condition that each such Third Party agrees to be bound by confidentiality and non-use obligations that are no less stringent than the terms of this Agreement;

(h) in the case of Assignee (and Licensees), preparing and submitting regulatory filings with respect to Products; and

(i) in the case of Assignee and Affiliated Licensees, disclosure to Third Parties in connection with due diligence or similar investigations by such Third Parties and disclosure to potential Third Party investors in confidential financing documents, provided, in each case, that any such Third Party agrees to be bound by reasonable obligations of confidentiality and non-use.

Notwithstanding the foregoing, in the event the Receiving Party is required to make a disclosure of the other party's Confidential Information pursuant to Section 7.3(c) or Section 7.3(d), the Receiving Party shall, except where impracticable, give reasonable advance notice to the Disclosing Party of such disclosure and use efforts to secure confidential treatment of such information at least as diligent as such party would use to protect such party's own confidential information, but in no event less than reasonable efforts. In any event, the Receiving Party agrees to take all reasonable action to avoid unauthorized disclosure and unauthorized use of Confidential Information.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

7.4 Confidentiality of Agreement. Except as otherwise provided in this Article 7, each party agrees not to disclose to any Third Party the terms of this Agreement without the prior written consent of the other party hereto, except that each party may make such disclosure to the extent permitted under Section 7.3 and, after the initial announcement of this Agreement pursuant to Section 7.6, each party may disclose the terms of this Agreement that have previously been made public as contemplated by Section 7.6.

7.5 Publications. Assignor shall be free to make publications and presentations regarding the subject matter of the Patent Rights, including oral presentations and abstracts, provided such publications and presentations do not contain or disclose Confidential Information of Assignee. In the case of any proposed oral presentation by Assignor regarding the Patent Rights and taking place before publication of any of the Patent Rights, Assignor shall inform Assignee of Assignor's proposed oral presentation in advance thereof. Assignee shall have the right to review any written material proposed for publication by Assignor, such as by manuscript or abstract. Before any such written material is submitted for publication, Assignor shall deliver a reasonably complete draft to Assignee a reasonable period (at least […***…], but, in any event, no fewer than […***…]) prior to submitting the material to a publisher or initiating any other disclosure. If Assignee identifies any Confidential Information of Assignee contained in such written material, Assignor shall comply with Assignee's request to delete references to Assignee's Confidential Information in any such material.

For the avoidance of doubt, Assignee (and its Licensees) shall at all times be free to make publications and presentations, including oral presentations and abstracts, relating to the development and commercialization of Products and other commercial exploitation of the Patent Rights by or on behalf of Assignee and its Licensees.

7.6 Publicity. At Assignee's option, Assignee may issue an initial press release announcing this Agreement in form and substance reasonably acceptable to Assignor. It is further acknowledged that a party may desire or be required to issue one or more subsequent press releases relating to this Agreement or activities hereunder. The parties agree to consult with each other reasonably and in good faith with respect to the text and timing of any such press release prior to the issuance thereof, provided that Assignor may not unreasonably withhold consent to such releases, but may withhold consent to the use of the inventors' names or the contribution of the Assignor more generally in such releases. Notwithstanding the previous sentence, Assignee may issue such press releases as it determines, based on advice of counsel, are reasonably necessary to comply with applicable law or with the requirements of any stock exchange on which securities issued by Assignee or its Affiliated Licensees are traded. In the event of a required public announcement, to the extent practicable under the circumstances, the party making such announcement shall use commercially reasonable efforts to provide the other party with a copy of the proposed text of such announcement sufficiently in advance of the scheduled release to afford such other party a reasonable opportunity to review and comment upon the proposed text.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

8. TERM; TERMINATION

8.1 Term. The term of this Agreement (the "**Term**") shall begin on the Effective Date and, unless earlier terminated in accordance with this Article 8, shall expire upon expiration of all Patent Rights.

8.2 Termination by Assignee At Will. Assignee shall have the right to terminate this Agreement at will at any time upon […***…] written notice to Assignor.

8.3 Termination for Breach. Assignor shall have the right to terminate this Agreement upon written notice to Assignee if Assignee is in material breach of this Agreement and, if capable of remedy, has not cured such breach within […***…] after notice from the terminating party requesting cure of the breach. Any such termination shall become effective at the end of such […***…] period unless Assignee has cured such breach prior to the end of such period. Any right to terminate under this Section 8.3 shall be stayed and the cure period tolled in the event that, during any cure period, Assignee shall have initiated dispute resolution in accordance with Article 10 with respect to the alleged breach, which stay and tolling shall continue until such dispute has been resolved in accordance with Article 10.

8.4 Consequences of Expiration or Termination.

(a) **Termination**. Upon any termination of this Agreement pursuant to Section 8.2 or Section 8.3, the Patent Rights shall automatically be reassigned to Assignor, and Assignee will assist Assignor in formally transferring the Patent Rights to the Assignor, at Assignee's cost. Notwithstanding the foregoing, solely in the event of termination of this Agreement by Assignor pursuant to Section 8.3 (but not termination of this Agreement by Assignee pursuant to Section 8.2):

(i) any license granted by Assignee to any Affiliated Licensee that is then in effect (together with any and all further sublicenses granted by such Affiliated Licensee to any Third Party Licensee thereunder) shall remain in full force and effect, provided that: (A) such Affiliated Licensee is not then in material breach of its license agreement; (B) such Affiliated Licensee agrees to be bound to Assignor as such Affiliated Licensee's direct licensor under the terms and conditions of this Agreement (and not such license agreement) as applicable to the Products which are the subject of the license agreement; (C) Assignee does not own, directly or indirectly, […***…] of the outstanding voting securities, capital stock, or other comparable equity or ownership interest of such Affiliated Licensee having the power to vote on or direct the affairs of such Affiliated Licensee; and (D) such Affiliated Licensee's licence agreement is not exclusive in all fields in any particular territory; provided that such Affiliated Licensee shall agree in writing that: (a) in no event shall Assignor be liable to such Affiliated Licensee for any actual or alleged breach of such license agreement by Assignee; and (b) such Affiliated Licensee shall not sublicense any rights under the licence agreement to Assignee. In addition, to the extent that any such Affiliated Licensee was exercising Assignee's rights in respect of the filing, prosecution or maintenance of the Patent Rights or any action or proceeding with respect to infringement of the Patent Rights, including but not limited to those rights detailed under Article 5 at the time of termination of this Agreement, such Affiliated Licensee may continue to exercise such rights after such termination subject to the terms and conditions of this Agreement; and

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(ii) any license granted by Assignee directly to any Third Party Licensee that is then in effect (together with any and all further sublicenses granted by such Third Party Licensee to any further Third Party Licensee thereunder) shall remain in full force and effect, provided that such Third Party Licensee: (A) is not then in material breach of its license agreement; and (B) agrees to be bound to Assignor as such Third Party Licensee's direct licensor under the terms and conditions of the license agreement; provided that (1) such Third Party Licensee shall agree in writing that in no event shall Assignor be liable to such Third Party Licensee for any actual or alleged breach of such license agreement by Assignee, (2) such license agreement shall be subordinate and comply in all respects to the applicable provisions of this Agreement, and (3) Assignor shall not have any obligations to such Third Party Licensee other than Assignor's obligations to Assignee as set forth herein.

(b) **Inventory**. Upon any termination of this Agreement pursuant to Section 8.2 or Section 8.3, Assignee, and any Licensee whose license was in effect as of immediately prior to such termination but did not remain in effect after termination as contemplated by Section 8.4(a)(i) or Section 8.4(a)(ii), as applicable, shall be entitled to finish any work-in-progress and to sell any completed inventory of Products which remain on hand as of the date of the termination, for up to six (6) months after termination, subject to payment of royalties to Assignor in accordance with Section 3.4.

(c) **Return of Confidential Information**. Within […***…] following the expiration or termination of this Agreement, each party shall return to the other party, or destroy, upon the written request of the other party, any and all Confidential Information of the other party in such party's possession; *provided*, *however* that each party may retain one copy of the other party's Confidential Information in such party's legal archives for the sole purpose of monitoring compliance with such party's obligations, enforcing such party's rights hereunder, and exercising such party's surviving rights hereunder.

8.5 Surviving Obligations. Neither expiration nor termination of this Agreement shall relieve either party of any obligation accruing prior to such expiration or termination. In addition, Sections 4.3, 4.4, 4.5, 6.3, 6.4, 7.1, 7.2, 7.3, 7.4, 8.4, 8.5, 9, 10 and 11 shall survive any expiration or termination of this Agreement.

9. INDEMNIFICATION

9.1 Indemnification by Assignee. Assignee hereby agrees to save, defend, indemnify and hold harmless Assignor from and against any and all losses, damages, liabilities, expenses and costs, including reasonable legal expense and attorneys' fees ("**Losses**"), to which it may become subject as a result of any claim, demand, action or other proceeding by any person to the extent such Losses arise out of: (a) the negligence or willful misconduct of Assignee, its Affiliates, Licensees and/or their respective officers, directors, employees, consultants and agents; (b) the breach by Assignee of any warranty, representation, covenant or agreement made by Assignee in this Agreement; or (c) the development, manufacture, use, handling, storage, sale or other disposition of any Product by or on behalf of Assignee or Licensees; in each case, except to the extent such Losses result from the gross negligence or willful misconduct of Assignor or the breach by Assignor of any warranty, representation, covenant or agreement made by Assignor in this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

9.2 Control of Defense. In the event Assignor seeks indemnification under Section 9.1, Assignor shall inform Assignee of a claim as soon as reasonably practicable after Assignor receives notice of the claim (it being understood and agreed, however, that the failure by Assignor to give notice of a claim as provided in this Section 9.2 shall not relieve Assignee of Assignee's indemnification obligation under this Agreement except and only to the extent that Assignee is actually damaged as a direct result of such failure to give notice), shall permit Assignee to assume direction and control of the defense of the claim (including the right to settle the claim solely for monetary consideration) using counsel reasonably satisfactory to Assignor, and shall cooperate as requested (at the expense of Assignee) in the defense of the claim. If Assignee does not assume control of such defense within […***…] after receiving notice of the claim from Assignor, Assignor shall control such defense and, without limiting Assignee's indemnification obligations, Assignee shall reimburse Assignor for all costs, including reasonable attorney fees, incurred by Assignor in defending itself within […***…] after receipt of any invoice therefor from Assignor. The party not controlling such defense may participate therein at such party's own expense. The party controlling such defense shall keep the other party advised of the status of such action, suit, proceeding or claim and the defense thereof and shall consider recommendations made by the other party with respect thereto. Assignor shall not agree to any settlement of such action, suit, proceeding or claim without the prior written consent of Assignee, which shall not be unreasonably withheld, delayed or conditioned. Assignee shall not agree to any settlement of such action, suit, proceeding or claim or consent to any judgment in respect thereof that does not include a complete and unconditional release of Assignor from all liability with respect thereto, that imposes any liability or obligation on Assignor, that acknowledges fault by Assignor without the prior written consent of Assignor.

9.3 Insurance. During the term of this Agreement, Assignee shall maintain, and shall require Licensees to maintain, insurance of such types and in such amounts as are commercially reasonable in light of their respective activities hereunder.

9.4 English Law. No provision of this Agreement shall operate to:-

(a) exclude any provision implied into this Agreement by English law and which may not be excluded by English law; or

(b) limit or exclude any liability, right or remedy to a greater extent than is permissible under English law including in relation to (1) death or personal injury caused by the negligence of a party to this Agreement or (2) fraudulent misrepresentation or deceit.

10. DISPUTE RESOLUTION

10.1 Dispute Resolution. It is the desire of the parties that any dispute arising under or relating to the parties' rights and obligations under this Agreement be resolved amicably by good faith discussions between the parties. If a party delivers written notice to the other party of any such dispute, the parties shall promptly convene a meeting (either in person or by telephone conference or videoconference) to attempt in good faith to resolve such dispute.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

10.2 Arbitration.

(a) **LCIA Rules**. Except as expressly set forth in Section 10.3, any dispute arising out of or in connection with this Agreement, including any question regarding its existence, validity or termination, that is not resolved by the parties within […***…] after a party's delivery to the other party of notice of such dispute shall, upon the written request of either party, be referred to and finally resolved by arbitration under the arbitration rules of the London Court of International Arbitration (the "**Rules**"), which Rules are deemed to be incorporated by reference into this Section, except to the extent any such Rule conflicts with the express provisions of this Article 10. The arbitration shall be determined by a single, independent, impartial arbitrator. The seat, or legal place, of arbitration shall be London, England. The language to be used in the arbitral proceedings shall be English. The governing law of the contract shall be the substantive law of England, excluding its conflicts of laws principles.

(b) **Expedited Binary Arbitration**. Within […***…] following appointment of the arbitrator in accordance with the Rules, each party shall submit to the arbitrator so appointed a written proposal setting forth a complete resolution of the applicable dispute that such party believes is reasonable under the circumstances, including, without limitation, any economic remedy such party believes is justified. Within […***…] following submission of the parties' written proposals to the arbitrator, the arbitrator shall select the proposal that such arbitrator determines to be the more reasonable of the two. The decision of the arbitrator shall be final, binding and non-appealable, except in the case of manifest error and judgment may be entered upon it in any court of competent jurisdiction, and subject to the aforesaid, the parties hereby exclude any rights of application or appeal to any court to the extent that they may validly so agree and in particular in connection with any question of law.

(c) **Arbitration Costs**. The arbitrator shall determine the proportions in which the parties shall pay the costs of the arbitration procedure. The arbitrator shall have the authority to order that all or a part of the legal or other costs of a party incurred in relation to the arbitration shall be paid by the other party.

10.3 Court Actions. Nothing contained in this Agreement shall deny either party the right to seek injunctive or other equitable relief from a court of competent jurisdiction in the context of a *bona fide* emergency or prospective irreparable harm, and such an action may be filed and maintained notwithstanding any ongoing discussions between the parties or any ongoing arbitration proceeding. In addition, either party may bring an action in any court of competent jurisdiction to resolve disputes pertaining to the validity, construction, scope, enforceability, infringement or other violations of patent rights or other intellectual property rights, and no such claim shall be subject to arbitration pursuant to Section 10.2.

11. Miscellaneous

11.1 Notices. All notices required or permitted to be given under this Agreement must be in writing and delivered by any method of mail (postage prepaid) requiring return receipt, by overnight courier, or by email, to the party to be notified at such party's address(es) given below, or at any address such party has previously designated by prior written

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

notice to the other. Notice shall be deemed sufficiently given for all purposes upon the earliest of: (a) the date of actual receipt; (b) if mailed, three (3) days after the date of postmark; or (c) if delivered by overnight courier, the next business day the overnight courier regularly makes deliveries.

If to Assignee, notices must be addressed to:

CRISPR Therapeutics AG
Aeschenvorstadt 36
CH-4051 Basel
Switzerland
Attention: Shaun Foy
Email: […***…]

With a copy to:

Vischer AG
Aeschenvorstadt 4
Postfach 526
4010 Basel
Switzerland
Attention: Mathias Staehlin
Email: […***…]

If to Assignor, notices must be addressed to:

The University of Vienna
Universitätsring 1
1010 Vienna
Austria
Attention: Ingrid Kelly, Technology Transfer Manager
Email: […***…]

With a copy to:

Emmanuelle Charpentier
Böcklerstrasse 18
38102 Braunschweig
Germany
Email: […***…]

and:

Ines Fonfara
Helmstedter Strasse 144
38102 Braunschweig
Germany
Email: […***…]

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11.2 Entire Agreement; Amendment. This Agreement contains the entire agreement and understanding between the parties with respect to the subject matter hereof, and merge all prior discussions, representations, and negotiations with respect to the subject matter of this Agreement. No amendment or modification hereof shall be valid or binding upon the parties hereto unless made in writing and signed by all parties hereto. The headings of clauses contained in this Agreement preceding the text of the sections, subsections and paragraphs hereof are inserted for convenience and ease of reference only and shall not constitute any part of this Agreement, or have any effect on its interpretation or construction. Ambiguities and uncertainties in this Agreement, if any, shall not be interpreted against any party, irrespective of which party may be deemed to have caused the ambiguity or uncertainty to exist.

11.3 Non-Waiver. The failure of a party to insist upon strict performance of any provision of this Agreement or to exercise any right or remedy arising out of this Agreement shall neither impair that provision or right nor constitute a waiver of that provision or right, in whole or in part, in that instance or in any other instance. Any waiver by a party of a particular provision, right or remedy shall be in writing, shall be as to a particular matter and, if applicable, for a particular period of time, and shall be signed by such party.

11.4 Assignment. Neither this Agreement nor any rights or obligations hereunder may be assigned or otherwise transferred by either party without the prior written consent of the other party; *provided*, *however*, that Assignee may assign this Agreement and its rights and obligations hereunder without Assignor's consent: (a) in connection with the transfer or sale of all or substantially all of Assignee's business to which this Agreement relates to a Third Party, whether by merger, sale of stock, sale of assets or otherwise; or (b) to an Affiliate. The rights and obligations of the parties under this Agreement shall be binding upon and inure to the benefit of the successors and permitted assigns of the parties, and the name of a party appearing herein will be deemed to include the name of such party's successors and permitted assigns to the extent necessary to carry out the intent of this section. Any assignment not in accordance with this Agreement shall be void.

11.5 Severability. In the event any provision of this Agreement is held to be illegal, invalid or unenforceable to any extent, the legality, validity and enforceability of the remainder of this Agreement shall not be affected thereby and shall remain in full force and effect and shall be enforced to the greatest extent permitted by law.

11.6 Choice of Law. This Agreement and any disputes arising out of or in connection with it or its subject matter or formation, including non-contractual disputes shall be governed by, and construed and enforced in accordance with, the laws of England, excluding its conflicts of laws principles.

11.7 Counterparts. This Agreement may be executed in any number of counterparts (including by electronic copy, facsimile or electronic signature), each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

11.8 Contracts (Rights of Third Parties) Act. A person who is not a party to this Agreement has no rights (whether under the Contracts (Rights of Third Parties) Act 1999 or otherwise) to enforce any provision of this Agreement.

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

IN WITNESS WHEREOF, the parties have executed this Patent Assignment Agreement as of the Effective Date.

UNIVERSITY OF VIENNA

By: /s/ Susanne Weigelin-Schwiedrzik
Name: Susanne Weigelin-Schwiedrzik
Title: Vice Rector for Research and Career Development

By: _____
Name: _____
Title: _____

EMMANUELLE MARIE CHARPENTIER

By: /s/ Emmanuelle Marie Charpentier

INES FONFARA

By: /s/ Ines Fonfara

CRISPR THERAPEUTICS AG

By: /s/ Shaun Foy
Name: Shaun Foy
Title: CFO

By: /s/ Rodger Novak
Name: Rodger Novak
Title: CEO

[***] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit 10.8

INDEMNIFICATION AGREEMENT

This Indemnification Agreement ("Agreement") is made as of by and between CRISPR Therapeutics AG, a Swiss stock corporation (the "Company"), and ("Indemnitee").

RECITALS

WHEREAS, the Company desires to attract and retain the services of highly qualified individuals, such as Indemnitee, to serve the Company;

WHEREAS, in order to induce Indemnitee to provide or continue to provide services to the Company, the Company wishes to provide for the indemnification of, and advancement of expenses to, Indemnitee to the maximum extent permitted by law;

WHEREAS, Articles of Association (the "Articles") require indemnification of the officers and directors of the Company, and Indemnitee may also be entitled to indemnification pursuant to Swiss law;

WHEREAS, the Articles expressly provide that the indemnification provisions set forth therein are not exclusive, and thereby contemplate that contracts may be entered into between the Company and members of the board of directors, officers and other persons with respect to indemnification;

WHEREAS, the Board of Directors of the Company (the "Board") has determined that the increased difficulty in attracting and retaining highly qualified persons such as Indemnitee is detrimental to the best interests of the Company's shareholders;

WHEREAS, it is reasonable and prudent for the Company contractually to obligate itself to indemnify, and to advance expenses on behalf of, such persons to the fullest extent permitted by applicable law, regardless of any amendment or revocation of the Articles, so that they will serve or continue to serve the Company free from undue concern that they will not be so indemnified;

WHEREAS, this Agreement is a supplement to and in furtherance of the indemnification provided in the Articles and any resolutions adopted pursuant thereto, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnitee thereunder; and

WHEREAS, Indemnitee has certain rights to indemnification and/or insurance provided by [Name of Fund/Sponsor] which Indemnitee and [Name of Fund/Sponsor] intend to be secondary to the primary obligation of the Company to indemnify Indemnitee as provided in this Agreement, with the Company's acknowledgment and agreement to the foregoing being a material condition to Indemnitee's willingness to serve or continue to serve on the Board.

NOW, THEREFORE, in consideration of the premises and the covenants contained herein, the Company and Indemnitee do hereby covenant and agree as follows:

Section 1. Services to the Company. Indemnitee agrees to serve as [a director/executive officer] of the Company. Indemnitee may at any time and for any reason resign from such position (subject to any other contractual obligation or any obligation imposed by law), in which event the Company shall have no obligation under this Agreement to continue Indemnitee in such position. This Agreement shall not be deemed an employment contract between the Company (or any of its subsidiaries or any Enterprise) and Indemnitee.

Section 2. Definitions.

As used in this Agreement:

(a) "Change in Control" shall mean any "person" (as such term is used in Sections 13(d) and 14(d) of the United States Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder (collectively, the "Securities Exchange Act")), but excluding (1) the Company, (2) any trustee or other fiduciary holding securities pursuant to an employee benefit or welfare plan or employee share plan of the Company or any subsidiary or affiliate of the Company, or any entity organised, appointed, established or holding securities of the Company with voting power for or pursuant to the terms of any such plan and (3) any entity owned, directly or indirectly, by the shareholders of the Company in substantially the same proportions as their ownership of shares of the Company, becomes the "beneficial owner" (as defined in Rule 13d-3 under the Securities Exchange Act), directly or indirectly, of securities of the Company representing 50% or more of the combined voting power of the Company's then outstanding securities without the prior approval of at least a majority of the directors in office immediately prior to such person's attaining such interest.

(b) "Corporate Status" describes the status of a person as a current or former director of the Company or current or former director, manager, partner, officer, employee, agent or trustee of any other Enterprise which such person is or was serving at the request of the Company.

(c) "Disinterested Directors" shall mean those members of the Board who are not parties to an action, suit or proceeding in respect of which indemnification is sought.

(d) "Enforcement Expenses" shall include all reasonable attorneys' fees, court costs, transcript costs, fees of experts, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other out-of-pocket disbursements or expenses of the types customarily incurred in connection with an action to enforce indemnification or advancement rights, or an appeal from such action. Expenses, however, shall not include fees, salaries, wages or benefits owed to Indemnitee.

(e) "Enterprise" shall mean any corporation (other than the Company), partnership, joint venture, trust, employee benefit plan, limited liability company, or other legal entity of which Indemnitee is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee.

(f) "Expenses" shall include all reasonable attorneys' fees, court costs, transcript costs, fees of experts, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other out-of-pocket disbursements or

expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, or otherwise participating in, a Proceeding or an appeal resulting from a Proceeding. Expenses, however, shall not include amounts paid in settlement by Indemnitee, the amount of judgments or fines against Indemnitee or fees, salaries, wages or benefits owed to Indemnitee.

(g) "Independent Counsel" means a law firm, or a partner (or, if applicable, member or shareholder) of such a law firm, that is experienced in matters of Swiss law and neither presently is, nor in the past five (5) years has been, retained to represent: (i) the Company, any subsidiary of the Company, any Enterprise or Indemnitee in any matter material to any such party; or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term "Independent Counsel" shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee's rights under this Agreement. The Company agrees to pay the reasonable fees and expenses of the Independent Counsel referred to above and to fully indemnify such counsel against any and all expenses, claims, liabilities and damages arising out of or relating to this Agreement or its engagement pursuant hereto.

(h) The term "Proceeding" shall include any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing or any other actual, threatened or completed proceeding, whether brought in the right of the Company or otherwise and whether of a civil, criminal, administrative, regulatory or investigative nature, and whether formal or informal, in which Indemnitee was, is or will be involved as a party or otherwise by reason of the fact that Indemnitee is or was a director of the Company or is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any Enterprise or by reason of any action taken by Indemnitee or of any action taken on his or her part while acting as a director of the Company or while serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any Enterprise, in each case whether or not serving in such capacity at the time any liability or expense is incurred for which indemnification, reimbursement or advancement of expenses can be provided under this Agreement; provided, however, that the term "Proceeding" shall not include any action, suit or arbitration, or part thereof, initiated by Indemnitee to enforce Indemnitee's rights under this Agreement as provided for in Section 12(a) of this Agreement.

Section 3. Indemnity in Third-Party Proceedings. The Company shall indemnify Indemnitee to the extent set forth in this Section 3 if Indemnitee is, or is threatened to be made, a party to or a participant in any Proceeding, other than a Proceeding by or in the right of the Company to procure a judgment in its favor. Pursuant to this Section 3, Indemnitee shall be indemnified against all Expenses, judgments, fines, penalties, excise taxes, and amounts paid in settlement actually and reasonably incurred by Indemnitee or on his or her behalf in connection with such Proceeding or any claim, issue or matter therein, if Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company and, in the case of a criminal proceeding, had no reasonable cause to believe that his or her conduct was unlawful.

Section 4. Indemnity in Proceedings by or in the Right of the Company. The Company shall indemnify Indemnitee to the extent set forth in this Section 4 if Indemnitee is, or is threatened to be made, a party to or a participant in any Proceeding by or in the right of the Company to procure a judgment in its favor. Pursuant to this Section 4, Indemnitee shall be indemnified against all Expenses actually and reasonably incurred by Indemnitee or on his or her behalf in connection with such Proceeding or any claim, issue or matter therein, if Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company. No indemnification for Expenses shall be made under this Section 4 in respect of any claim, issue or matter as to which Indemnitee shall have been finally adjudged by a court to be liable to the Company, unless and only to the extent that Swiss courts shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, Indemnitee is fairly and reasonably entitled to indemnification for such expenses as Swiss courts shall deem proper.

Section 5. Indemnification for Expenses of a Party Who is Wholly or Partly Successful. Notwithstanding any other provisions of this Agreement and except as provided in Section 7, to the extent that Indemnitee is a party to or a participant in any Proceeding and is successful in such Proceeding or in defense of any claim, issue or matter therein, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by him or her in connection therewith. If Indemnitee is not wholly successful in such Proceeding but is successful as to one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by Indemnitee or on his or her behalf in connection with each successfully resolved claim, issue or matter. For purposes of this Section and without limitation, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter.

Section 6. Reimbursement for Expenses of a Witness or in Response to a Subpoena. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee, by reason of his or her Corporate Status, (i) is a witness in any Proceeding to which Indemnitee is not a party and is not threatened to be made a party or (ii) receives a subpoena with respect to any Proceeding to which Indemnitee is not a party and is not threatened to be made a party, the Company shall reimburse Indemnitee for all Expenses actually and reasonably incurred by him or her or on his or her behalf in connection therewith.

Section 7. Exclusions. Notwithstanding any provision in this Agreement to the contrary, the Company shall not be obligated under this Agreement:

(a) to indemnify for amounts otherwise indemnifiable hereunder (or for which advancement is provided hereunder) if and to the extent that Indemnitee has otherwise actually received such amounts under any insurance policy, contract, agreement or otherwise; provided that the foregoing shall not affect the rights of Indemnitee or the Fund Indemnitors as set forth in Section 13(c);

(b) to indemnify for an accounting of profits made from the purchase and sale (or sale and purchase) by Indemnitee of securities of the Company within the meaning of Section

16(b) of the Securities Exchange Act, as amended, or similar provisions of state statutory law or common law, or from the purchase or sale by Indemnitee of such securities in violation of Section 306 of the Sarbanes-Oxley Act of 2002 ("SOX");

(c) to indemnify Indemnitee in the event (i) that Indemnitee's conduct has been finally adjudged by a Swiss court to have been knowingly fraudulent or deliberately dishonest, or to constitute willful misconduct; (ii) that indemnification is expressly prohibited by Swiss law; (iii) that payment is actually made to Indemnitee under a valid and collectible insurance policy or under a valid and enforceable indemnification clause, by law or agreement, except in respect of any indemnification exceeding the payment under such insurance, clause, by law or agreement; or (iv) that a final decision by a Swiss court having jurisdiction in the matter shall determine that such indemnification is not lawful;

(d) to indemnify with respect to any Proceeding, or part thereof, brought by Indemnitee against the Company, any legal entity which it controls, any director or officer thereof or any third party, unless (i) the Board has consented to the initiation of such Proceeding or part thereof and (ii) the Company provides the indemnification, in its sole discretion, pursuant to the powers vested in the Company under applicable law; provided, however, that this Section 7(d) shall not apply to (A) counterclaims or affirmative defenses asserted by Indemnitee in an action brought against Indemnitee or (B) any action brought by Indemnitee for indemnification or advancement from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company in the suit for which indemnification or advancement is being sought as described in Section 12; or

(e) to provide any indemnification or advancement of expenses that is prohibited by applicable law (as such law exists at the time payment would otherwise be required pursuant to this Agreement).

Section 8. Advancement of Expenses. Subject to Section 9(b), the Company shall advance, to the extent not prohibited by law, the Expenses incurred by Indemnitee in connection with any Proceeding, and such advancement shall be made within thirty (30) days after the receipt by the Company of a statement or statements requesting such advances (including any invoices received by Indemnitee, which such invoices may be redacted as necessary to avoid the waiver of any privilege accorded by applicable law) from time to time, whether prior to or after final disposition of any Proceeding. Advances shall be unsecured and interest free. Advances shall be made without regard to Indemnitee's (i) ability to repay the expenses, (ii) ultimate entitlement to indemnification under the other provisions of this Agreement, and (iii) entitlement to and availability of insurance coverage, including advancement, payment or reimbursement of defense costs, expenses or covered loss under the provisions of any applicable insurance policy (including, without limitation, whether such advancement, payment or reimbursement is withheld, conditioned or delayed by the insurer(s)). Indemnitee shall qualify for advances upon the execution and delivery to the Company of this Agreement which shall constitute an undertaking providing that Indemnitee undertakes to the fullest extent required by law to repay the advance if and to the extent that it is ultimately determined by a court of competent jurisdiction in a final judgment, not subject to appeal, that Indemnitee is not entitled to be indemnified by the Company. The right to advances under this paragraph shall in all events continue until final disposition of any Proceeding, including any appeal therein. Nothing in this

Section 8 shall limit Indemnitee's right to advancement pursuant to Section 12(e) of this Agreement.

Section 9. Procedure for Notification and Defense of Claim.

(a) To obtain indemnification under this Agreement, Indemnitee shall submit to the Company a written request therefor specifying the basis for the claim, the amounts for which Indemnitee is seeking payment under this Agreement, and all documentation related thereto as reasonably requested by the Company.

(b) In the event that the Company shall be obligated hereunder to provide indemnification for or make any advancement of Expenses with respect to any Proceeding, the Company shall be entitled to assume the defense of such Proceeding, or any claim, issue or matter therein, with counsel approved by Indemnitee (which approval shall not be unreasonably withheld or delayed) upon the delivery to Indemnitee of written notice of the Company's election to do so. After delivery of such notice, approval of such counsel by Indemnitee and the retention of such counsel by the Company, the Company will not be liable to Indemnitee under this Agreement for any fees or expenses of separate counsel subsequently employed by or on behalf of Indemnitee with respect to the same Proceeding; provided that (i) Indemnitee shall have the right to employ separate counsel in any such Proceeding at Indemnitee's expense and (ii) if (A) the employment of separate counsel by Indemnitee has been previously authorized by the Company, (B) Indemnitee shall have reasonably concluded that there may be a conflict of interest between the Company and Indemnitee in the conduct of such defense, or (C) the Company shall not continue to retain such counsel to defend such Proceeding, then the fees and expenses actually and reasonably incurred by Indemnitee with respect to his or her separate counsel shall be Expenses hereunder.

(c) In the event that the Company does not assume the defense in a Proceeding pursuant to paragraph (b) above, then the Company will be entitled to participate in the Proceeding at its own expense.

(d) The Company shall not be liable to indemnify Indemnitee under this Agreement for any amounts paid in settlement of any Proceeding effected without its prior written consent (which consent shall not be unreasonably withheld or delayed). Without limiting the generality of the foregoing, the fact that an insurer under an applicable insurance policy delays or is unwilling to consent to such settlement or is or may be in breach of its obligations under such policy, or the fact that directors' and officers' liability insurance is otherwise unavailable or not maintained by the Company, may not be taken into account by the Company in determining whether to provide its consent. The Company shall not, without the prior written consent of Indemnitee (which consent shall not be unreasonably withheld or delayed), enter into any settlement which (i) includes an admission of fault of Indemnitee, any non-monetary remedy imposed on Indemnitee or any monetary damages for which Indemnitee is not wholly and actually indemnified hereunder or (ii) with respect to any Proceeding with respect to which Indemnitee may be or is made a party or may be otherwise entitled to seek indemnification hereunder, does not include the full release of Indemnitee from all liability in respect of such Proceeding.

Section 10. Procedure Upon Application for Indemnification.

(a) Upon written request by Indemnitee for indemnification pursuant to Section 9(a), a determination, with respect to Indemnitee's entitlement to indemnification hereunder shall be made in the specific case by one of the following methods: (x) if a Change in Control shall have occurred, by Independent Counsel in a written opinion to the Board; or (y) if a Change in Control shall not have occurred: (i) by a majority vote of the Disinterested Directors, even though less than a quorum; (ii) by a committee of Disinterested Directors designated by a majority vote of the disinterested directors, even though less than a quorum; or (iii) if there are no Disinterested Directors or if the Disinterested Directors so direct, by Independent Counsel in a written opinion to the Board. In the case that such determination is made by Independent Counsel, a copy of Independent Counsel's written opinion shall be delivered to Indemnitee and, if it is so determined that Indemnitee is entitled to indemnification, payment to Indemnitee shall be made within forty-five (45) days after such determination. Indemnitee shall cooperate with the Independent Counsel or the Company, as applicable, in making such determination with respect to Indemnitee's entitlement to indemnification, including providing to such counsel or the Company, upon reasonable advance request, any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnitee and reasonably necessary to such determination. Any out-of-pocket costs or expenses (including reasonable attorneys' fees and disbursements) actually and reasonably incurred by Indemnitee in so cooperating with the Independent Counsel or the Company shall be borne by the Company (irrespective of the determination as to Indemnitee's entitlement to indemnification) and the Company hereby indemnifies and agrees to hold Indemnitee harmless therefrom.

(b) If the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 10(a), the Independent Counsel shall be selected by the Board if a Change in Control shall not have occurred or, if a Change in Control shall have occurred, by Indemnitee. Indemnitee or the Company, as the case may be, may, within ten (10) days after written notice of such selection, deliver to the Company or Indemnitee, as the case may be, a written objection to such selection; provided, however, that such objection may be asserted only on the ground that the Independent Counsel so selected does not meet the requirements of "Independent Counsel" as defined in Section 2 of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If such written objection is so made and substantiated, the Independent Counsel so selected may not serve as Independent Counsel unless and until such objection is withdrawn or the Swiss court has determined that such objection is without merit. If, within twenty (20) days after the later of (i) submission by Indemnitee of a written request for indemnification pursuant to Section 9(a), and (ii) the final disposition of the Proceeding, including any appeal therein, no Independent Counsel shall have been selected without objection, either Indemnitee or the Company may petition the Swiss court for resolution of any objection which shall have been made by Indemnitee or the Company to the selection of Independent Counsel and/or for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate. The person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 10(a) hereof. Upon the due commencement of any judicial proceeding or arbitration pursuant to Section 12(a) of this Agreement, Independent

Counsel shall be discharged and relieved of any further responsibility in such capacity (subject to the applicable standards of professional conduct then prevailing).

(c) Notwithstanding anything to the contrary contained in this Agreement, the determination of entitlement to indemnification under this Agreement shall be made without regard to the Indemnitee's entitlement to and availability of insurance coverage, including advancement, payment or reimbursement of defense costs, expenses or covered loss under the provisions of any applicable insurance policy (including, without limitation, whether such advancement, payment or reimbursement is withheld, conditioned or delayed by the insurer(s)).

Section 11. Presumptions and Effect of Certain Proceedings.

(a) To the extent permitted by applicable law, in making a determination with respect to entitlement to indemnification hereunder, it shall be presumed that Indemnitee is entitled to indemnification under this Agreement if Indemnitee has submitted a request for indemnification in accordance with Section 9(a) of this Agreement, and the Company shall have the burden of proof to overcome that presumption in connection with the making of any determination contrary to that presumption.

(b) The termination of any Proceeding or of any claim, issue or matter therein, by judgment, order, settlement or conviction, or upon a plea of guilty, nolo contendere or its equivalent, shall not (except as otherwise expressly provided in this Agreement) of itself adversely affect the right of Indemnitee to indemnification or create a presumption that Indemnitee did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Company or, with respect to any criminal Proceeding, that Indemnitee had reasonable cause to believe that his or her conduct was unlawful.

(c) The knowledge and/or actions, or failure to act, of any director, manager, partner, officer, employee, agent or trustee of the Company, any subsidiary of the Company, or any Enterprise shall not be imputed to Indemnitee for purposes of determining the right to indemnification under this Agreement.

Section 12. Remedies of Indemnitee.

(a) Subject to Section 12(f), in the event that (i) a determination is made pursuant to Section 10 of this Agreement that Indemnitee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 8 of this Agreement, (iii) no determination of entitlement to indemnification shall have been made pursuant to Section 10(a) of this Agreement within sixty (60) days after receipt by the Company of the request for indemnification for which a determination is to be made other than by Independent Counsel, (iv) payment of indemnification or reimbursement of expenses is not made pursuant to Section 5 or 6 or the last sentence of Section 10(a) of this Agreement within thirty (30) days after receipt by the Company of a written request therefor (including any invoices received by Indemnitee, which such invoices may be redacted as necessary to avoid the waiver of any privilege accorded by applicable law) or (v) payment of indemnification pursuant to Section 3 or 4 of this Agreement is not made within thirty (30) days after a determination has

been made that Indemnitee is entitled to indemnification, Indemnitee shall be entitled to an adjudication by Swiss courts of his or her entitlement to such indemnification or advancement. Alternatively, Indemnitee, at his or her option, may seek an award in arbitration to be conducted by a single arbitrator pursuant to the Swiss Rules of International Arbitration of the Swiss Chambers' Arbitration Institution. Indemnitee shall commence such proceeding seeking an adjudication or an award in arbitration within 180 days following the date on which Indemnitee first has the right to commence such proceeding pursuant to this Section 12(a); provided, however, that the foregoing time limitation shall not apply in respect of a proceeding brought by Indemnitee to enforce his or her rights under Section 5 of this Agreement. The Company shall not oppose Indemnitee's right to seek any such adjudication or award in arbitration.

(b) In the event that a determination shall have been made pursuant to Section 10(a) of this Agreement that Indemnitee is not entitled to indemnification, any judicial proceeding or arbitration commenced pursuant to this Section 12 shall be conducted in all respects as a de novo trial, or arbitration, on the merits and Indemnitee shall not be prejudiced by reason of that adverse determination. In any judicial proceeding or arbitration commenced pursuant to this Section 12, the Company shall have the burden of proving Indemnitee is not entitled to indemnification or advancement, as the case may be.

(c) If a determination shall have been made pursuant to Section 10(a) of this Agreement that Indemnitee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding or arbitration commenced pursuant to this Section 12, absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law.

(d) The Company shall be precluded from asserting in any judicial proceeding or arbitration commenced pursuant to this Section 12 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any such court or before any such arbitrator that the Company is bound by all the provisions of this Agreement.

(e) The Company shall indemnify Indemnitee to the fullest extent permitted by law against any and all Enforcement Expenses and, if requested by Indemnitee, shall (within thirty (30) days after receipt by the Company of a written request therefor) advance, to the extent not prohibited by law, such Enforcement Expenses to Indemnitee, which are incurred by Indemnitee in connection with any action brought by Indemnitee for indemnification or advancement from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company in the suit for which indemnification or advancement is being sought.[1] Such written request for advancement shall include invoices received by Indemnitee in connection with such Enforcement Expenses but, in the case of invoices in connection with legal services, any references to legal work performed or to expenditures made that would cause Indemnitee to waive any privilege accorded by applicable law need not be included with the invoice.

---

1 The *Levy* decision discussed in the Leader Notes and footnote 13 held that payment of "fees on fees" is impermissible where there is no right to indemnification.

(f) Notwithstanding anything in this Agreement to the contrary, no determination as to entitlement to indemnification under this Agreement shall be required to be made prior to the final disposition of the Proceeding, including any appeal therein.

Section 13. Non-exclusivity; Survival of Rights; Insurance; [Primacy of Indemnification;] Subrogation.

(a) The rights of indemnification and to receive advancement as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Articles, any agreement, a vote of shareholders or a resolution of directors, or otherwise. No amendment, alteration or repeal of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee in his or her Corporate Status prior to such amendment, alteration or repeal. To the extent that a change in Swiss law, whether by statute or judicial decision, permits greater indemnification or advancement than would be afforded currently under the Articles and this Agreement, it is the intent of the parties hereto that Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

(b) To the extent that the Company maintains an insurance policy or policies providing liability insurance for directors, managers, partners, officers, employees, agents or trustees of the Company or of any other Enterprise, Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any such director, manager, partner, officer, employee, agent or trustee under such policy or policies. If, at the time of the receipt of a notice of a claim pursuant to the terms hereof, the Company has director and officer liability insurance in effect, the Company shall give prompt notice of the commencement of such proceeding to the insurers in accordance with the procedures set forth in the respective policies.

(c) The Company hereby acknowledges that Indemnitee has certain rights to indemnification, advancement of expenses and/or insurance provided by [Name of Fund/Sponsor] and certain of [its] [their] affiliates (collectively, the "Fund Indemnitors"). The Company hereby agrees (i) that it is the indemnitor of first resort (*i.e.*, its obligations to Indemnitee are primary and any obligation of the Fund Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by Indemnitee are secondary), (ii) that it shall be required to advance the full amount of expenses incurred by Indemnitee and shall be liable for the full amount of all Expenses, judgments, penalties, fines and amounts paid in settlement to the extent legally permitted and as required by the terms of this Agreement and the Articles (or any other agreement between the Company and Indemnitee), without regard to any rights Indemnitee may have against the Fund Indemnitors, and (iii) that it irrevocably waives, relinquishes and releases the Fund Indemnitors from any and all claims against the Fund Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Fund

Indemnitors on behalf of Indemnitee with respect to any claim for which Indemnitee has sought indemnification from the Company shall affect the foregoing and the Fund Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of Indemnitee against the Company. The Company and Indemnitee agree that the Fund Indemnitors are express third party beneficiaries of the terms of this Section 13(c).[2]

(d) Except as provided in paragraph (c) above, in the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee [(other than against the Fund Indemnitors)], who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

(e) Except as provided in paragraph (c) above, the Company's obligation to provide indemnification or advancement hereunder to Indemnitee who is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any other Enterprise shall be reduced by any amount Indemnitee has actually received as indemnification or advancement from such other Enterprise.

Section 14. Duration of Agreement. This Agreement shall continue until and terminate upon the later of: (a) ten (10) years after the date that Indemnitee shall have ceased to serve as [a director/executive officer] of the Company or (b) one (1) year after the final termination of any Proceeding, including any appeal, then pending in respect of which Indemnitee is granted rights of indemnification or advancement hereunder and of any proceeding commenced by Indemnitee pursuant to Section 12 of this Agreement relating thereto. Except as provided above, the indemnification provided under this Agreement shall continue as to the Indemnitee even though the Indemnitee may have ceased to serve as [a director/executive officer] of the Company. This Agreement shall be binding upon the Company and its successors and assigns and shall inure to the benefit of Indemnitee and his or her heirs, executors and administrators. The Company shall require and cause any successor (whether direct or indirect by purchase, merger, consolidation or otherwise) to all, substantially all or a substantial part, of the business and/or assets of the Company, by written agreement in form and substance satisfactory to Indemnitee, expressly to assume and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform if no such succession had taken place.

Section 15. Severability. If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable for any reason whatsoever: (a) the validity, legality and enforceability of the remaining provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and shall remain enforceable to the fullest extent permitted by

[2] This provision is intended to be used for directors appointed by investment funds to address the *Levy* decision described in the Leader Notes. In the absence of a provision such as the above, it is possible that the *Levy* case would be broadly construed to obligate a fund providing indemnification to contribute its share of any payments made by any other party providing similar indemnification to its director designees.

law; (b) such provision or provisions shall be deemed reformed to the extent necessary to conform to applicable law and to give the maximum effect to the intent of the parties hereto; and (c) to the fullest extent possible, the provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested thereby.

Section 16. Enforcement.

(a) The Company expressly confirms and agrees that it has entered into this Agreement and assumed the obligations imposed on it hereby in order to induce Indemnitee to serve as [a director/executive officer] of the Company, and the Company acknowledges that Indemnitee is relying upon this Agreement in serving as [a director/executive officer]of the Company.

(b) This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof; provided, however, that this Agreement is a supplement to and in furtherance of the Articles and applicable law, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnitee thereunder.

Section 17. Modification and Waiver. No supplement, modification or amendment, or waiver of any provision, of this Agreement shall be binding unless executed in writing by the parties thereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions of this Agreement nor shall any waiver constitute a continuing waiver. No supplement, modification or amendment of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee prior to such supplement, modification or amendment.

Section 18. Notice by Indemnitee. Indemnitee agrees promptly to notify the Company in writing upon being served with any summons, citation, subpoena, complaint, indictment, information or other document relating to any Proceeding or matter which may be subject to indemnification, reimbursement or advancement as provided hereunder. The failure of Indemnitee to so notify the Company shall not relieve the Company of any obligation which it may have to Indemnitee under this Agreement or otherwise.

Section 19. Notices. All notices, requests, demands and other communications under this Agreement shall be in writing and shall be deemed to have been duly given if (i) delivered by hand and receipted for by the party to whom said notice or other communication shall have been directed, (ii) mailed by certified or registered mail with postage prepaid, on the third business day after the date on which it is so mailed, (iii) mailed by reputable overnight courier and receipted for by the party to whom said notice or other communication shall have been directed or (iv) sent by facsimile transmission, with receipt of oral confirmation that such transmission has been received:

(a) If to Indemnitee, at such address as Indemnitee shall provide to the Company.

(b) If to the Company to:

CRISPR Therapeutics AG
Aeschenvorstadt 36
4051 Basel, Switzerland

with copy to:

c/o CRISPR Therapeutics, Inc.
200 Sidney St.
Cambridge, Massachusetts 02139
Attention: Marc Becker

and

VISCHER AG
Aeschenvorstadt 4
4010 Basel, Switzerland
Attention: Dr. Matthias Staehelin

or to any other address as may have been furnished to Indemnitee by the Company.

Section 20. Contribution. To the fullest extent permissible under applicable law, if the indemnification provided for in this Agreement is unavailable to Indemnitee for any reason whatsoever, the Company, in lieu of indemnifying Indemnitee, shall contribute to the amount incurred by Indemnitee, whether for judgments, fines, penalties, excise taxes, amounts paid or to be paid in settlement and/or for Expenses, in connection with any Proceeding in such proportion as is deemed fair and reasonable in light of all of the circumstances in order to reflect (i) the relative benefits received by the Company and Indemnitee in connection with the event(s) and/or transaction(s) giving rise to such Proceeding; and/or (ii) the relative fault of the Company (and its directors, officers, employees and agents) and Indemnitee in connection with such event(s) and/or transactions.

Section 21. Internal Revenue Code Section 409A. The Company intends for this Agreement to comply with the Indemnification exception under Section 1.409A-1(b)(10) of the regulations promulgated under the Internal Revenue Code of 1986, as amended (the "Code"), which provides that indemnification of, or the purchase of an insurance policy providing for payments of, all or part of the expenses incurred or damages paid or payable by Indemnitee with respect to a bona fide claim against Indemnitee or the Company do not provide for a deferral of compensation, subject to Section 409A of the Code, where such claim is based on actions or failures to act by Indemnitee in his or her capacity as a service provider of the Company. The parties intend that this Agreement be interpreted and construed with such intent.

Section 22. Applicable Law and Consent to Jurisdiction. This Agreement and all disputes including those concerning any statute of limitations, set-off claims, tort claims and

interest claims, shall be governed by the laws of Switzerland excluding its conflict of laws rules. Except with respect to any arbitration commenced by Indemnitee pursuant to Section 12(a) of this Agreement, the Company and Indemnitee hereby irrevocably and unconditionally (i) agree that any action or proceeding arising out of or in connection with this Agreement shall be brought only in Switzerland, and not in any other court in any other country, (ii) consent to submit to the exclusive jurisdiction of Swiss courts for purposes of any action or proceeding arising out of or in connection with this Agreement, (iii) consent to service of process at the address set forth in Section 19 of this Agreement with the same legal force and validity as if served upon such party personally within the Switzerland, (iv) waive any objection to the laying of venue of any such action or proceeding in Swiss courts, and (v) waive, and agree not to plead or to make, any claim that any such action or proceeding brought in Swiss courts has been brought in an improper or inconvenient forum.

Section 23. Headings. The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

Section 24. Identical Counterparts. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute one and the same Agreement. Only one such counterpart signed by the party against whom enforceability is sought needs to be produced to evidence the existence of this Agreement.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have caused this Agreement to be signed as of the day and year first above written.

CRISPR THERAPEUTICS AG

By: _____
Name:
Title:

_____
[Name of Indemnitee]

EXHIBIT 10.10

EMPLOYMENT AGREEMENT

made as of October 6, 2016

between

CRISPR Therapeutics AG, company number CHE-494.642.722, Aeschenvorstadt 36, CH-4051 Basel

(hereinafter referred to as "**the Company**")

and

Rodger Novak, Oberwilerstrasse 26, CH-4054 Basel

(hereinafter referred to as "**Executive**")
(Together hereinafter referred to as "**the Parties**" or individually as "**the Party**")

WHEREAS, with the completion of the contemplated initial public offering of the Company ("**IPO**"), the Company will subject to the Swiss act against excessive remunerations by listed companies;

WHEREAS, that the employment relationship of the Executive with the Company has started on 1 November 2013;

WHEREAS, in connection with the IPO, the Parties agree to amend the employment agreement dated November 2013 (the "**Agreement**"), with such amendment to become effective with such IPO;

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Position and Duties. During the period which the Executive is employed pursuant to this Agreement (the "**Employment Period**"), the Executive shall serve as the Chief Executive Officer of the Company (the "**CEO**"), and shall have responsibilities and duties consistent with such position and such other responsibilities and duties which are not inconsistent with the Executive's skills and experience or his ability to discharge his responsibilities as Chief Executive Officer as may from time to time be prescribed by the Board of the Company. The Executive shall devote the Executive's full working time and

efforts to the business and affairs of the Company. Notwithstanding the foregoing, the Executive may engage in charitable or other community activities or, to the extent specifically approved by the Board in each case, other profit-oriented activities, as long as such services and activities do not materially interfere with the Executive's performance of the Executive's duties to the Company as provided in this Agreement.

2. Place of Work. During the Employment Period, the Executive's principal place of employment will be primarily Basel, Switzerland; however, the Company may require the Executive to travel temporarily to other locations in connection with the Company's business.

3. Working Time. The Executive's employment is full-time. He shall perform all duties as required by the Company. Any overtime work shall be fully deemed compensated by the Executive's Base Salary; the Executive shall neither be entitled to further financial compensation nor to compensation in form of paid leave for any overtime work.

4. Compensation and Related Matters.

(a) Base Salary. During the Employment Period, the Company shall pay the Executive, as compensation for the performance of the Executive's duties and obligations under this Agreement, an annual base salary in an amount in CHF equivalent to USD 502'000 (the "**Base Salary**") payable in a manner that is consistent with the Company's usual payroll practices for senior executives. The Executive's Base Salary shall be reviewed annually by the Company's Board of Directors (the "**Board**") or the Compensation, Nomination and Corporate Governance Committee of the Board (the "**Committee**") for increase, if any, which in the sole discretion of the Board or, to the extent delegated by the Board, the Committee is merited or necessary to maintain a competitive Base Salary for the Executive. After any such increase, Base Salary as used herein shall thereafter refer to the increased amount. The Base Salary shall not be reduced at any time without the express written consent of the Executive.

(b) Annual Bonus. During the Employment Period, the Executive shall be eligible to receive an annual target bonus (a "**Bonus**") if, as reasonably determined by the Board or, to the extent delegated by the Board, the Committee, one or more of the performance targets annually determined by the Board or the Committee ("**Performance Targets**") is achieved. If all of the Performance Targets are achieved, the Bonus will be not less than fifty percent (50%) of the Executive's Base Salary (the "**Target Bonus"**) or such greater amount as is determined by the Board or Committee as applicable. In the event that less than all of the Performance Targets are met by Executive, the Bonus paid in respect of this paragraph may be less than the Target Bonus (50% of the Base Salary). Except as set forth in Section 6(a) hereof, the Executive must be employed by the Company on the day any such earned Bonus is paid which shall be not later than 2 ½ months after the end of each calendar year. The Executive's target bonus opportunity as percentage of Base Salary may be reviewed periodically and upwardly adjusted in the sole discretion of the Board or, to the extent delegated by the Board, the Committee. After any such increase, the term "Target Bonus" shall refer to the increased amount. The Target Bonus shall not be reduced at any time without the express prior written consent of the Executive.

(c) Equity Compensation. The Executive shall be eligible to participate in the Company's discretionary bonus scheme including equity awards according to its terms and conditions, as defined by the Company from time to time in its own discretion. Both entitlement to a discretionary bonus and its amount and form (equity or other) shall be determined by the Company in its own discretion.

(d) Approval by Shareholders' Meeting and Mandatory Law. Any compensation (including bonus, equity awards and fringe benefits) to be paid under this employment agreement, is, to the extent requited by Swiss laws and the Company's Article of Association, subject to approval by the general meeting of shareholders' of the Company. In the event of a conflict between the employment agreement and applicable mandatory Swiss law, the Company shall have the right to unilaterally modify the employment agreement to the extent necessary to comply with mandatory law with immediate effect.

(e) Expenses. During the Employment Period, the Executive shall be entitled to receive reimbursement for all reasonable expenses incurred by him in performing services hereunder, in accordance with the policies and procedures then in effect and established by the Company for its senior executive officers.

(f) Other Benefits. During the Employment Period, the Executive shall be entitled to participate in or receive benefits under any employee benefit plan or arrangement currently maintained or which may, in the future, be made available by the Company generally to its executives and key management employees, subject to and on a basis consistent with the terms, conditions and overall administration of such plan or arrangement. Any payments or benefits payable to the Executive under a plan or arrangement referred to in this Section 2(f) in respect of any calendar year during which the Executive is employed by the Company for less than the whole of such year shall, unless otherwise provided in the applicable plan or arrangement, be prorated in accordance with the number of days in such calendar year during which the Executive is so employed. Should any such payments or benefits accrue on a fiscal (rather than calendar) year, then the proration in the preceding sentence shall be on the basis of a fiscal year rather than calendar year.

(g) Vacations. The Executive shall be entitled to accrue up to 25 paid vacation days in each year, which shall be accrued ratably. In other respects, the Company's vacation policy shall apply to vacations.

(h) Accident and Disability Insurance. In case of temporary or permanent inability to work due to an accident, the Base Salary will be covered by any compulsory and additional accident insurance (*UVG*) the Company has in place. The coverage will be subject to any applicable laws, rules and regulations related to the policy at any time. The costs of work related accident insurance are borne by the Company; those for non-work related accident insurance are shared equally between the Company and the Executive. The Company may establish a long-term disability plan (*Krankentaggeldversicherung*), which guarantees reimbursement of 80% of Executive's salary from the 30th day of disability for 720 days. Should the insurance, for what reason whatsoever, not pay such insurance benefits, art. 324a of the Swiss Code of Obligations shall apply. In any case, the insurance cover ends at the end of employment. The premiums for the long-term disability plan shall

be borne equally by the Company and the Executive. The terms and conditions of all insurances are described in the respective policies, a copy of which has been handed out to the Executive separately.

5. Termination

(a) Ordinary Termination. The employment shall continue for an indefinite period of time and may be terminated by either Party at any time with a notice period of 12 months, effective as per the end of a calendar month. Upon service of notice, the Executive shall resign from all offices and functions assumed in relation to this Employment Agreement effective upon first request of the Company. The Company may replace the Executive's position immediately after either Party has served notice of Ordinary Termination and direct the Executive to perform other work during the notice period. Any termination of the Executive's employment under this Agreement that does not constitute a termination for Cause by the Company under Section 5(d) or a termination for Cause by the Executive under Section 5(e) and does not result from the death or disability of the Executive under Section 5(b) or (c) shall be deemed an "**Ordinary Termination**".

(b) Death. The Employment Period and the Executive's employment hereunder shall terminate upon his death.

(c) Disability. The Company may terminate the Employment Period and the Executive's employment with a notice period of 3 months if the Executive is disabled and unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation for a period of 180 days (which need not be consecutive) in any 12-month period. If any question shall arise as to whether during any period the Executive is disabled so as to be unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation, the Executive may, and at the request of the Company shall, submit to the Company a certification in reasonable detail by a physician mutually acceptable to Executive and Company as to whether the Executive is so disabled or how long such disability is expected to continue, and such certification shall for the purposes of this Agreement be conclusive of the issue. If the Executive and the Company cannot agree as to a qualified physician, each shall appoint such a physician and those two physicians shall select a third who shall make such determination in writing. The determination of disability made in writing to the Company and the Executive shall be final and conclusive for all purposes of this Agreement. The Executive shall cooperate with any reasonable request of the physician in connection with such certification. Nothing in this Section 5(c) shall be construed to waive the Executive's rights, if any, under existing law, regulation or insurance contract.

(d) Termination for Cause by the Company. The Company may terminate the Employment Period and the Executive's employment hereunder for good cause ("**Cause**") as defined in art. 337 Swiss Code of Obligations[1]. For purposes of this Section 5(d), "Cause" shall include the following: (i) conduct by the Executive constituting a material

[1] Art. 337 para 2 Swiss Code of Obligations: good cause generally includes any circumstance which renders the continuation of the employment relationship in good faith unconscionable for the party giving notice.

act of misconduct in connection with the performance of the Executive's duties that results in material harm to the Company, including, without limitation, misappropriation of funds or property of the Company or any of its subsidiaries or affiliates other than the occasional, customary and de minimis use of Company property for personal purposes; (ii) the Executive's indictment for, conviction of or plea of guilty or nolo contendre to (A) any felony; or (B) a misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) continued non-performance by the Executive of the Executive's material responsibilities hereunder (other than by reason of the Executive's physical or mental illness, incapacity or disability) which has continued for more than 30 days following written notice of such non-performance from the CEO; (iv) a breach by the Executive of any of the material provisions contained in this Agreement or the material obligations arising pursuant to the Confidentiality and Assignment Agreement (as hereinafter defined); (v) a material violation by the Executive of any of the Company's written employment policies, which if possible to cure is not cured within 30 days following written notice of such violation; or (vi) failure to cooperate with a bona fide internal investigation or an investigation by regulatory or law enforcement authorities, after being instructed by the Company to cooperate, or the willful destruction or failure to preserve documents or other materials known to be relevant to such investigation or the inducement of others to fail to cooperate or to produce documents or other materials in connection with such investigation; provided that the exercise by Executive of his rights under Swiss law shall not constitute a breach of this Subsection (vi); (vii) any other behavior of the Executive that renders the continuation of the employment relationship in good faith unconscionable for the Company. For the avoidance of doubt, any termination by the Company for Cause, whether if justified or not, will terminate the Employment Period immediately

(e) Termination for Cause by the Executive. The Executive may terminate the Employment Period and his employment hereunder for good cause as defined in art. 337 Swiss Code of Obligations. For the avoidance of doubt, any termination by the Executive for Cause, whether if justified or not, will terminate the Employment Period immediately.

6. Compensation Upon Termination.

(a) Termination Generally. Upon the last day of employment of this Agreement, the Company shall pay the Executive (or his estate): (i) the Base Salary due to the Executive through the Date of Termination; (ii) any vacation days that accrued through the Date of Termination; (iii) any vested benefits the Executive may have under any employee benefit plan of the Company through the Date of Termination, which vested benefits shall be paid and/or provided in accordance with the terms of such employee benefit plans on or before the time required by law but in no event more than 30 days after the Executive's Date of Termination. In addition, except upon (i) justified termination for Cause by the Company, (ii) unjustified termination for Cause by the Executive or (iii) a termination under Section 5(c), the Company shall also pay to the Executive an amount equivalent to the Target Bonus and vesting of all stock options and stock based awards shall continue to vest from the date notice of termination is given until the Date of Termination.

(b) Release of Claims and Vesting. In the event a notice of termination of (i) an Ordinary Termination, (ii) an unjustified termination for Cause by the Company or (iii) a justified Termination for Cause by the Executive occurs during the Change in Control Period, and subject to the Executive signing, within 30 days following the notice of termination, a Release of Claims in a form reasonably required by the Company (the "**Release**") and the Release becoming effective and non-revocable 30 days after the end of the Employment Period, all stock options and stock-based awards held by the Executive as of the date of the notice of termination, shall vest and become exercisable or nonforfeitable. Notwithstanding the foregoing, if, at the time of a Change in Control, the Company determines in its sole discretion, in reliance upon an opinion of counsel in form and substance satisfactory to the Company, that the acceleration in the prior sentence would not be permissible under applicable law, then in lieu of the acceleration in the prior sentence, all stock options and stock-based awards held by the Executive as of the date of such Change in Control, shall vest and become exercisable or nonforfeitable as of the date of such Change in Control.

(c) For purposes of this Agreement "**Date of Termination**" shall mean:

(i) the date of death if the Executive's employment is terminated by death;

(ii) the date on which notice of termination is given if the Executive's employment is terminated by the Company for justified Cause under Section 5(d)

(iii) the date on which notice of termination is given if the Executive's employment is terminated by the Executive for unjustified Cause under Section 5(e);

(iv) the last day of the 3rd month following the date on which the notice of termination of the Executive's employment was given by the Company on account of disability under Section 5(c);

(v) in an Ordinary Termination, the last day of the 12th month following the date on which the notice of termination of the Executive's employment was given by the Company or the Executive as applicable;

(vi) the last day of the 12th month following the date on which the notice of termination was given by the Company for unjustified Cause under Section 5(d);

(vii) the last day of the 12th month following the date on which the notice of termination was given or by the Executive for justified Cause under Section 5(e).

7. Garden Leave.

(a) Upon receipt by either Party of the notice of Ordinary Termination, the Company shall, upon request of the Executive, release the Executive from his working obligations ("**Garden Leave**") within 15 days after receipt of such request. During the Garden Leave the Executive may enter into consulting arrangements and accept board positions, the resulting compensation shall accrue to the Executive and shall not reduce the Company's obligation pursuant to this Agreement. For the avoidance of doubt, the Company may release the Executive from his working obligations at any time.

(b) Change in Control. Upon receipt by either Party of the notice of Ordinary Termination during a period of 18 months after a Change in Control becomes effective (the **"Change in Control Period**"), upon request of the Executive, the Company shall put the Executive on Garden Leave within 15 days after receipt of such request. During the Garden Leave the Executive may enter into consulting arrangements and accept board positions, the resulting compensation shall accrue to the Executive and shall not reduce the Company's obligation pursuant to this Agreement. For the avoidance of doubt, the Company may release the Executive from his working obligations at any time.

(c) For purposes of this Agreement, "**Change in Control**" shall mean any of the following:

(i) any "person," as such term is used in Sections 13(d) and 14(d) of the U.S. Securities Exchange Act of 1934, as amended (the "**Act**") (other than the Company, any of its subsidiaries, or any trustee, fiduciary or other person or entity holding securities under any employee benefit plan or trust of the Company or any of its subsidiaries), together with all "affiliates" and "associates" (as such terms are defined in Rule 12b-2 under the Act) of such person, shall become the "beneficial owner" (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, of securities of the Company representing 50 percent or more of the combined voting power of the Company's then outstanding securities having the right to vote in an election of the Board ("**Voting Securities**") (in such case other than as a result of an acquisition of securities directly from the Company); or

(ii) the date a majority of the members of the Board is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of the Board before the date of the appointment or election; or

(iii) the consummation of (A) any consolidation or merger of the Company where the stockholders of the Company, immediately prior to the consolidation or merger, would not, immediately after the consolidation or merger, beneficially own (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, shares representing in the aggregate more than 50 percent of the voting shares of the Company issuing cash or securities in the consolidation or merger (or of its ultimate parent corporation, if any), or (B) any sale or other transfer (in one transaction or a series of transactions contemplated or

arranged by any party as a single plan) of all or substantially all of the assets of the Company.

Notwithstanding the foregoing, a "Change in Control" shall not be deemed to have occurred for purposes of the foregoing clause (i) solely as the result of an acquisition of securities by the Company which, by reducing the number of shares of Voting Securities outstanding, increases the proportionate number of Voting Securities beneficially owned by any person to 50 percent or more of the combined voting power of all of the then outstanding Voting Securities; provided, however, that if any person referred to in this sentence shall thereafter become the beneficial owner of any additional shares of Voting Securities (other than pursuant to a stock split, stock dividend, or similar transaction or as a result of an acquisition of securities directly from the Company) and immediately thereafter beneficially owns 50 percent or more of the combined voting power of all of the then outstanding Voting Securities, then a "Change in Control" shall be deemed to have occurred for purposes of the foregoing clause (i). For the avoidance of doubt, a migratory merger of the Company for the principal purpose of re-domiciling the Company shall not constitute a Change in Control."

8. Proprietary Information, Noncompetition and Cooperation.

(a) Restrictive Covenants and Assignment of Inventions. The Executive agrees to honor the obligations and restrictive covenants set forth in the Proprietary Information and Inventions Agreement attached hereto as Exhibit B (the "**Confidentiality and Assignment Agreement**"), the terms of which are incorporated by reference as material terms of this Agreement.

(b) Litigation and Regulatory Cooperation. During and after the Executive's employment, the Executive shall use reasonable efforts to cooperate with the Company in the defense or prosecution of any claims or actions now in existence or that may be brought in the future against or on behalf of the Company that relate to events or occurrences that transpired while the Executive was employed by the Company. The Executive's cooperation in connection with such claims or actions shall include, but not be limited to, being available to meet with counsel to prepare for discovery or trial and to act as a witness on behalf of the Company at mutually convenient times. During and after the Executive's employment, the Executive shall use reasonable efforts to cooperate with the Company in connection with any investigation or review of any federal, state or local regulatory authority as any such investigation or review relates to events or occurrences that transpired while the Executive was employed by the Company. The Company shall reimburse the Executive for any reasonable out-of-pocket expenses incurred in connection with the Executive's performance of obligations pursuant to this Section 8(b).

(c) Injunction. The Executive agrees that it would be difficult to measure any damages caused to the Company that might result from any breach by the Executive of the promises set forth in this Section 8 and the Confidentiality and Assignment Agreement, and that in any event money damages would be an inadequate remedy for any such breach. Accordingly, subject to Section 8 of this Agreement, the Executive agrees that if the

Executive breaches, or proposes to breach, any portion of this Agreement and the Confidentiality and Assignment Agreement, the Company shall be entitled, in addition to all other remedies that it may have, to an injunction or other appropriate equitable relief to restrain any such breach without showing or proving any actual damage to the Company.

(d) Protected Reporting; Defend Trade Secrets Act Immunity. Nothing in this Agreement or the Confidentiality and Assignment Agreement, and nothing in any policy or procedure, in any other confidentiality, employment, separation agreement or in any other document or communication from the Company limits the Executive's ability to file a charge or complaint with any government agency concerning any acts or omissions that the Executive may believe constitute a possible violation of federal or state law or making other disclosures that are protected under the whistleblower provisions of applicable federal or state law regulation or affects the Executive's ability to communicate with any government agency or otherwise participate in any investigation or proceeding that may be conducted by a government agency, including by providing documents or other information, without notice to the Company. In addition, for the avoidance of doubt, pursuant to the U.S. Defend Trade Secrets Act of 2016, the Executive shall not be held criminally or civilly liable under any U.S. or state trade secret law for the disclosure of a trade secret that (i) is made (A) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (B) solely for the purpose of reporting or investigating a suspected violation of law; or (ii) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

(e) Non-Competition and Non-Solicitation. In order to protect the Company's proprietary information and good will, during the Executive's employment with the Company and for a period of twelve (12) months following the termination of Executive's employment for any reason (the "**Restricted Period**"), the Executive will not directly or indirectly, whether as owner, partner, shareholder, director, manager, consultant, agent, employee, co-venturer or otherwise, engage, participate or invest in any Competing Business. For the avoidance of doubt, in the event the Executive is put on Garden Leave, the duration of the Garden Leave shall be included into the Restricted Period. For purposes hereof, the term "**Competing Business**" shall mean any entity engaged in the discovery, development or commercialization of CAS9 technology for human therapeutics. Notwithstanding the foregoing, nothing contained hereinabove or hereinbelow shall be deemed to prohibit the Executive from (i) acquiring, solely as an investment, shares of capital stock (or other interests) of any corporation (or other entity) not exceeding 2% of such corporation's (or other entity's) then outstanding shares of capital stock (or equity interest), or (ii) working for a line of business, division or unit of a larger entity that competes with the Company as long as the Executive's activities for such line of business, division or unit do not involve work by the Executive on matters that are directly competitive with the Company's business. In addition, during the Restricted Period, the Executive will not, directly or indirectly, in any manner, other than for the benefit of the Company (i) divert or take away customers of the Company or any of its suppliers; and/or (ii) solicit, entice, attempt to persuade any other employee or consultant of the Company to leave the Company for any reason (other than the termination of subordinate employees undertaken in the course of my employment with the Company). The Executive

acknowledges and agrees that if the Executive violates any of the provisions of this Section 8(e), (i) the running of the Restricted Period will be extended by the time during which the Executive engages in such violation(s), but in no event for a period exceeding three (3) years following the end of the Employment Period and (ii) the Executive must provide compensation for the damage incurred by the Company, if any, resulting from the violation of the provisions of this Section 8(e).

9. Integration. This Agreement and the Confidentiality and Assignment Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements between the parties concerning such subject matter.

10. Successor to the Executive. This Agreement shall inure to the benefit of and be enforceable by the Executive's personal representatives, executors, administrators, heirs, distributees, devisees and legatees. In the event of the Executive's death after his termination of employment but prior to the completion by the Company of all payments due him under this Agreement, the Company shall continue such payments to the Executive's beneficiary designated in writing to the Company prior to his death (or to his estate, if the Executive fails to make such designation).

11. Enforceability. If any portion or provision of this Agreement (including, without limitation, any portion or provision of any section of this Agreement) shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

12. Survival. The provisions of this Agreement and the Confidentiality and Assignment Agreement shall survive the termination of this Agreement and/or the termination of the Executive's employment to the extent necessary to effectuate the terms contained herein.

13. Waiver. No waiver of any provision hereof shall be effective unless made in writing and signed by the waiving party. The failure of any party to require the performance of any term or obligation of this Agreement, or the waiver by any party of any breach of this Agreement, shall not prevent any subsequent enforcement of such term or obligation or be deemed a waiver of any subsequent breach.

14. Notices. Any notices, requests, demands and other communications provided for by this Agreement shall be sufficient if in writing and delivered in person or sent by a nationally recognized overnight courier service or by registered or certified mail, postage prepaid, return receipt requested, to the Executive at the last address the Executive has filed in writing with the Company or, in the case of the Company, at its main offices, attention of the Chairman of the Board.

15. Amendment. This Agreement may be amended or modified only by a written instrument signed by the Executive and by a duly authorized representative of the Company.

16. Entry into Force. This Agreement enters into force on the first trading day of the of the Company shares at an internationally recognized stock exchange.

17. Governing Law. This Employment Agreement and all disputes between the parties in connection to this Employment Agreement shall be governed by the laws of Switzerland excluding its conflict of laws rules. All terms of employment not explicitly governed by this Employment Agreement are governed by the Swiss Code of Obligations.

18. Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original; but such counterparts shall together constitute one and the same document.

19. Assignment and Transfer by the Company. The Company will have the right to assign and/or transfer this Agreement to its affiliates, successors and assigns. The Executive expressly consents to be bound by the provisions of this Agreement for the benefit of the Company or any parent, subsidiary or affiliate to whose employ the Executive may be transferred without the necessity that this Agreement be re-signed at the time of such transfer.

[Remainder of page intentionally left blank. Signature page follows.]

IN WITNESS WHEREOF, the parties have executed this Agreement as per the date written below

Place, Date:
London, 6 October 2016

CRISPR Therapeutics AG

/s/ Tyler Dylan-Hyde
Tyler Dylan-Hyde

Place, Date:
Madrid, 6 October 2016

Executive

/s/ Rodger Novak
Rodger Novak

Exhibit A

RELEASE OF CLAIMS

This Release of Claims (the "**Release**") is entered into by and between Rodger Novak, Oberwilerstrasse 26, CH-4054 (the "**Executive**") and CRISPR Therapeutics AG (the "**Company**") in connection with the "Employment Agreement" between the Executive and the Company dated [DATE]. For purposes of this Release, the Company and its affiliates shall individually and collectively be referred to as the "**Company**." This is the Release referenced in Section 6(b) of the Employment Agreement. Terms with initial capitalization that are not otherwise defined in this Release have the meanings set forth in the Employment Agreement.

1. Executive's Release of Claims. The Executive voluntarily releases and forever discharges the Company, its affiliated and related entities, its and their respective predecessors, successors and assigns, its and their respective employee benefit plans and fiduciaries of such plans, and the current and former members, partners, directors, officers, shareholders, employees, attorneys, accountants and agents of each of the foregoing in their official and personal capacities (collectively referred to as the "**Releasees**") generally from all claims, demands, debts, damages and liabilities of every name and nature, known or unknown (collectively, "**Claims**") that, as of the date when the Executive signs this Release, he has, ever had, now claims to have or ever claimed to have had against any or all of the Releasees. This general release of Claims includes, without implication of limitation, the release of all Claims:

- relating to the Executive's employment by and termination from employment with the Company or any related entity;
- of wrongful discharge or violation of public policy;
- of breach of contract;
- of discrimination or retaliation under any applicable law;
- of defamation or other torts;
- for wages, bonuses, incentive compensation, stock, stock options, vacation pay or any other compensation or benefits; and
- for damages or other remedies of any sort, including, without limitation, compensatory damages, punitive damages, injunctive relief and attorney's fees.

2. Limitations on Executive's Release of Claims. Notwithstanding anything in Section 1 of this Release to the contrary:

a. Employment Agreement. Nothing in this Release limits the Executive's rights to (i) reimbursement of unreimbursed expenses pursuant to Section 4(e) of the

Employment Agreement, (ii) payment of accrued but unpaid Base Salary, or (iii) indemnification to the extent applicable.

b. Equity. Nothing in this Release is intended to affect the Executive's rights or obligations arising under the documents and agreements relating to the Executive's purchase and ownership of the common shares of the Company or any other stockholder's agreement between the Executive and the Company (collectively, the "**Equity Documents**").

3. Ongoing Obligations of the Executive. The Company and the Executive hereby reaffirm their ongoing obligations under the Employment Agreement and the Confidentiality and Assignment Agreement (the "**Ongoing Obligations**"), which are incorporated herein by reference.

4. Nondisparagement. Executive agrees not to make any disparaging, critical or otherwise detrimental statements to any person or entity concerning any Releasee or the products or services of any Releasee. This nondisparagement obligation shall not in any way affect the Executive's obligation to testify truthfully in any legal proceeding.

5. No Assignment. The Executive represents that he has not assigned to any other person or entity any Claims against any Releasee.

6. Right to Consider and Revoke Release. The Executive acknowledges that he has been given the opportunity to consider this Release for a period ending one month after the last day of the employment relationship (the "**Consideration Period**"). In the event the Executive executed this Release before the end of the Consideration Period, he acknowledges that such decision was entirely voluntary and that he had the opportunity to consider this Release until the end of the Consideration Period. To accept this Release, the Executive shall deliver a signed Release to the Company before the end of the Consideration Period. This Release shall take effect only if it is executed within the Consideration Period as set forth above and if it is not revoked the Consideration Period. If the conditions set forth in this Section 7 are satisfied, this Release shall become effective and enforceable on the date immediately following the last day of the Revocation Period (the "**Effective Date**").

7. Other Terms.

a. Legal Representation; Review of Release. The Executive acknowledges that he has been advised to discuss all aspects of this Release with his attorney, that he has carefully read and fully understands all of the provisions of this Release and that he is voluntarily entering into this Release.

b. Binding Nature of Release. This Release shall be binding upon the Executive and upon his heirs, administrators, representatives and executors.

c. Modification of Release; Waiver. This Release may be amended, only upon a written agreement executed by the Executive and the Company.

d. Severability. In the event that at any future time it is determined by a court of competent jurisdiction that any covenant, clause, provision or term of this Release is illegal, invalid or unenforceable, the remaining provisions and terms of this Release shall not be affected thereby and the illegal, invalid or unenforceable term or provision shall be severed from the remainder of this Release. In the event of such severance, the remaining covenants shall be binding and enforceable.

e. Governing Law: This Release and all disputes between the parties in connection to this Release shall be governed by the laws of Switzerland excluding its conflict of laws rules.

f. Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original; but such counterparts shall together constitute one and the same document.

g. Entire Agreement; Absence of Reliance. This Release constitutes the entire agreement between the Executive and the Company and supersedes any previous agreements or understandings between the Executive and the Company, except the Equity Documents, the Ongoing Obligations and any other obligations specifically preserved in this Agreement. The Executive acknowledges that he is not relying on any promises or representations by the Company or the agents, representatives or attorneys of any of the entities within the definition of Company regarding any subject matter addressed in this Release.

IN WITNESS WHEREOF, the parties have executed this Release as per the date written below

Place, Date:

CRISPR Therapeutics AG

Place, Date:

Executive

Rodger Novak

EXHIBIT B

EXHIBIT 10.11

AMENDED AND RESTATED EMPLOYMENT AGREEMENT

This Amended and Restated Employment Agreement ("Agreement") is made this 6th day of October, 2016, between CRISPR Therapeutics, Inc., a Delaware corporation (the "Company"), and Marc Becker (the "Executive" and, together with the Company, the "Parties" or each individually, a "Party").

WHEREAS, upon completion of the first underwritten public offering of the equity securities of Parent under the Securities Act of 1933, as amended (the "IPO"), CRISPR Therapeutics AG ("Parent") will be subject to the Swiss Ordinance act against excessive compensation in listed companies;

WHEREAS, the Company and the Executive are parties to that Employment Agreement dated January 18, 2016 (the "Prior Agreement"), and desire to amend and restate the Prior Agreement in its entirety, effective upon and subject to the consummation of the IPO (the "Effective Date") on the terms contained herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Position and Duties. During the period which the Executive is employed pursuant to the Prior Agreement and this Agreement (the "Employment Period"), the Executive shall serve as the Chief Financial Officer of the Company, and shall have responsibilities and duties consistent with such position and such other responsibilities and duties which are not inconsistent with the Executive's skills and experience or his ability to discharge his responsibilities as Chief Financial Officer as may from time to time be prescribed by the Chief Executive Officer of the Company (the "CEO"). The Executive shall devote the Executive's full working time and efforts to the business and affairs of the Company, except as otherwise permitted under Section 3(b)(i). Notwithstanding the foregoing, the Executive may engage in charitable or other community activities, as long as such services and activities are disclosed to the Board of Directors of Parent (the "Board") and do not materially interfere with the Executive's performance of the Executive's duties to the Company as provided in this Agreement. During the Employment Period, the Executive's principal place of employment will be in the Greater Boston, Massachusetts area; however, the Company may require the Executive to travel temporarily to other locations in connection with the Company's business.

2. Compensation and Related Matters.

(a) Base Salary. During the Employment Period, the Company shall pay the Executive, as compensation for the performance of the Executive's duties and obligations under this Agreement, an annual base salary of $350,000, payable in a manner that is consistent with the Company's usual payroll practices for senior executives. The Executive's Base Salary shall be reviewed annually by the Board or the Compensation, Nomination and Corporate Governance Committee of the Board (the "Committee") for adjustment. Such adjustment, if any, shall be within the sole discretion of the Board or, to the extent delegated by the Board, the Committee. The annual

base salary in effect at any given time is referred to herein as "Base Salary." The Base Salary shall not be reduced at any time without the express written consent of the Executive.

(b) Annual Bonus. During the Employment Period, the Executive shall be eligible to receive an annual target bonus (a "Bonus") if, as reasonably determined by the Board or, to the extent delegated by the Board, the Committee one or more of the performance targets annually determined by the Board or the Committee ("Performance Targets") is achieved. If all of the Performance Targets are achieved, the Bonus will equal not less than 40 percent of the Executive's Base Salary (the "Target Bonus"). In the event that less than all of the Performance Targets are met by Executive, the Bonus paid in respect of this paragraph may be less than the Target Bonus. Except as set forth in Section 5(a) hereof, the Executive must be employed by the Company on the day any such earned Bonus is paid which shall be not later than 2 ½ months after the end of each calendar year. The Executive's target bonus opportunity as a percentage of Base Salary may be reviewed periodically and adjusted in the sole discretion of the Board or, to the extent delegated by the Board, the Committee. After any such adjustment, the term "Target Bonus" shall refer to the increased amount. The Target Bonus shall not be reduced at any time without the express prior written consent of the Executive.

(c) Equity Compensation. The Executive shall be eligible to participate in Parent's equity incentive plan according to its terms and conditions, as defined by Parent from time to time in its sole discretion. Both entitlement to any equity awards and the amount shall be determined by Parent in its sole discretion.

(d) Expenses. During the Employment Period, the Executive shall be entitled to receive reimbursement for all reasonable expenses incurred by him in performing services hereunder, in accordance with the policies and procedures then in effect and established by the Company for its senior executive officers.

(e) Other Benefits. During the Employment Period, the Executive shall be entitled to participate in or receive benefits under any employee benefit plan or arrangement currently maintained or which may, in the future, be made available by the Company generally to its executives and key management employees, subject to and on a basis consistent with the terms, conditions and overall administration of such plan or arrangement. Any payments or benefits payable to the Executive under a plan or arrangement referred to in this Section 2(e) in respect of any calendar year during which the Executive is employed by the Company for less than the whole of such year shall, unless otherwise provided in the applicable plan or arrangement, be prorated in accordance with the number of days in such calendar year during which the Executive is so employed. Should any such payments or benefits accrue on a fiscal (rather than calendar) year, then the proration in the preceding sentence shall be on the basis of a fiscal year rather than calendar year.

(f) Vacations. The Executive shall be entitled to accrue up to 20 paid vacation days in each year, which shall be accrued ratably. In other respects, the Company's vacation policy as the same may then be in effect shall apply to vacations.

(g) Approval by Shareholders' Meeting and Mandatory Law. Any compensation (including bonus, equity awards and fringe benefits) to be paid under this Agreement, is, to the extent required by Swiss laws and the Parent's Article of Association, subject to approval by the general

meeting of shareholders' of Parent. In the event of a conflict between the Agreement and applicable mandatory Swiss law, the Company shall have the right to unilaterally modify the Agreement to the extent necessary to comply with mandatory law with immediate effect.

3. Termination.

(a) General. The Executive's employment shall continue until it is terminated in accordance with this Agreement. Upon service of a Notice of Termination (as defined below), the Executive shall resign from all offices and functions assumed in relation to this Agreement effective upon first request of the Company.

(b) Termination by the Company without Cause or by Executive for Good Reason; Notice Period. In the event that the Company elects to terminate the Executive's employment without Cause (as defined below) or the Executive elects to resign from Executive's employment with Good Reason (as defined below) (in either case an "Involuntary Departure"), the Party electing to end the employment relationship shall provide the other Party with a Notice of Termination (as defined below) of the Involuntary Departure specifying a notice period (the "Notice Period") of six (6) months, effective as per the end of a calendar month; provided that, in the case that the Notice of Termination of an Involuntary Departure is provided within the 12 month period following a Change in Control (the "Change in Control Period" or "CIC Period"), then the Notice Period shall be 12 months.

(i) During the Notice Period following a Notice of Termination of an Involuntary Departure, the Executive shall continue to be available to provide services to the extent requested by the Company or the Board, provided at any time during the Notice Period the Company may replace the Executive's position and/or direct the Executive to perform other or reduced work; provided further that, upon the 15th day following such Notice of Termination (or such earlier date as the Company shall determine in its sole discretion), the Company shall release the Executive from his working obligations pursuant to Section 3(b)(i) (except to the extent the parties otherwise agree) and place the Executive on garden leave for the remainder of the Notice Period ("Garden Leave"). During such Garden Leave, the Executive (A) may enter into consulting arrangements and accept board positions provided such outside business activities do not interfere with Executive's obligations under this Agreement including without limitation, pursuant to Section 7 and (B) shall be free to engage in other employment provided that such employment does not interfere with Executive's obligations under this Agreement including without limitation, pursuant to Section 7. The Company shall be prohibited during the Garden Leave from reducing any compensation to which the Executive is entitled to receive during the remainder of the Notice Period pursuant to Section 3(b)(ii).

(ii) With respect to compensation during the Notice Period following a Notice of Termination of an Involuntary Departure, and subject to (i) the Executive signing, within 30 days following the date that the Notice of Termination is given, a Release of Claims in a form reasonably required by the Company (the "Release") and (ii) Section 6, the Executive: (A) shall continue to receive the Base Salary and employee benefits consistent with the Company's then existing benefits plans and programs; (B) shall be entitled to receive

an amount equal to the Target Bonus with respect to the Notice Period (i.e., a prorated Target Bonus based upon the number of days in the applicable Notice Period), which amount shall be payable no more than 60 days after the Notice of Termination (provided that if the 60-day period begins in one calendar year and ends in a second calendar year, such Target Bonus shall be paid in the second calendar year); (C) shall continue to vest through the last day of the Notice Period in any equity awards outstanding as of the date the Notice of Termination is given; provided, and notwithstanding the foregoing, Section 5(a) may apply if the Notice of Termination of an Involuntary Departure occurs during a CIC Period and (D) shall not continue to accrue vacation under Section 2(f).

(iii) If during the Notice Period following a Notice of Termination of an Involuntary Departure, the Company terminates the Executive's employment for Cause, then the Company shall provide a restated Notice of Termination and the Notice Period shall end on the earlier date set forth in the restated Notice of Termination.

(c) Death. The Executive's employment hereunder shall terminate upon his death.

(d) Disability. The Company may terminate the Executive's employment if the Executive is disabled and unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation for a period of 180 days (which need not be consecutive) in any 12-month period. If any question shall arise as to whether during any period the Executive is disabled so as to be unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation, the Executive may, and at the request of the Company shall, submit to the Company a certification in reasonable detail by a physician mutually acceptable to Executive and Company as to whether the Executive is so disabled or how long such disability is expected to continue, and such certification shall for the purposes of this Agreement be conclusive of the issue. If the Executive and the Company cannot agree as to a qualified physician, each shall appoint such a physician and those two physicians shall select a third who shall make such determination in writing. The determination of disability made in writing to the Company and the Executive shall be final and conclusive for all purposes of this Agreement. The Executive shall cooperate with any reasonable request of the physician in connection with such certification. Nothing in this Section 3(d) shall be construed to waive the Executive's rights, if any, under existing law including, without limitation, the Family and Medical Leave Act of 1993, 29 U.S.C. §2601 *et seq*. and the Americans with Disabilities Act, 42 U.S.C. §12101 *et seq.*

(e) Termination by Company for Cause. The Company may terminate the Executive's employment hereunder for Cause.

(f) Termination by the Executive Without Good Reason. The Executive may terminate his employment hereunder at any time without Good Reason.

(g) Definitions:

(i) Cause. For purposes of this Agreement, "Cause" shall mean: (i) conduct by the Executive constituting a material act of misconduct in connection with the performance of the Executive's duties that results in material harm to the Company, including,

without limitation, misappropriation of funds or property of the Company or any of its subsidiaries or affiliates other than the occasional, customary and de minimis use of Company property for personal purposes; (ii) the Executive's indictment for, conviction of or plea of guilty or nolo contendre to (A) any felony; or (B) a misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) continued non-performance by the Executive of the Executive's material responsibilities hereunder (other than by reason of the Executive's physical or mental illness, incapacity or disability) which has continued for more than 30 days following written notice of such non-performance from the CEO; (iv) a breach by the Executive of any of the material provisions contained in Section 7 of this Agreement or the material obligations arising pursuant to the Confidentiality and Assignment Agreement (as hereinafter defined); (v) a material violation by the Executive of any of the Company's written employment policies, which if possible to cure is not cured within 30 days following written notice of such violation; or (vi) failure to cooperate with a bona fide internal investigation or an investigation by regulatory or law enforcement authorities, after being instructed by the Company to cooperate, or the willful destruction or failure to preserve documents or other materials known to be relevant to such investigation or the inducement of others to fail to cooperate or to produce documents or other materials in connection with such investigation; provided that the exercise by Executive of his rights under the United States Constitution shall not constitute a breach of this subsection (vi).

(ii) Good Reason. For purposes of this Agreement, "Good Reason" shall mean that the Executive has complied with the "Good Reason Process" (hereinafter defined) following the occurrence of any of the following events not expressly consented to in writing by Executive: (i) a material diminution in the Executive's responsibilities, authority and function, an adverse change to the Executive's job title as Senior Vice President and Chief Financial Officer, or a change in the Executive's reporting relationship that results in the Executive no longer directly reporting to the CEO; (ii) a material reduction in the Executive's Base Salary except pursuant to a salary reduction program affecting substantially all of the employees of the Company, provided, that it does not adversely affect the Executive to a greater extent than other similarly situated employees and, provided further, that any reduction in the Executive's Base Salary of more than ten percent (10%) shall constitute Good Reason; (iii) a material change in the geographic location at which the Executive must regularly report to work and provide services to the Company (except for required travel on Company business); or (iv) the material breach of this Agreement by the Company (each a "Good Reason Condition"). Good Reason Process shall mean that (i) the Executive reasonably determines in good faith that a Good Reason Condition has occurred; (ii) the Executive notifies the Company in writing of the occurrence of the Good Reason Condition within 90 days of the occurrence of such condition; (iii) the Executive cooperates in good faith with the Company's efforts, for a period not less than 30 days following such notice (the "Cure Period"), to remedy the Good Reason Condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) the Executive terminates employment within 60 days after the end of the Cure Period. If the Company cures the Good Reason Condition during the Cure Period, Good Reason shall be deemed not to have occurred.

(iii) Notice of Termination. Except for termination as specified in Section 3(c), any termination of the Executive's employment by either the Company or the Executive

shall be communicated by written Notice of Termination to the other party hereto. For purposes of this Agreement, a "Notice of Termination" shall mean a notice which shall indicate the specific termination provision in this Agreement relied upon.

(iv) Date of Termination. For purposes of this Agreement, "Date of Termination" shall mean: (i) if the Executive's employment is terminated by death, the date of death; (ii) if the Executive's employment is terminated on account of disability under Section 3(d) or by the Company for Cause under Section 3(e), the date on which Notice of Termination is given; (iii) if the Executive's employment terminates as a result of an Involuntary Departure under Section 3(b), the last day of the Notice Period; (iv) if the Executive's employment is terminated by the Executive under Section 3(f) without Good Reason, 30 days after the date on which a Notice of Termination is given (unless the Company waives all or part of the thirty (30) day period).

4. Compensation Upon Termination. If the Executive's employment with the Company is terminated for any reason, the Company shall pay or provide to the Executive (or to the Executive's authorized representative or estate) (i) any Base Salary earned through the Date of Termination; (ii) unpaid expense reimbursements (subject to, and in accordance with Section 2(d) of this Agreement); (iii) subject to Section 3(b)(ii)(D), unused vacation that accrued through the Date of Termination; and (iv) any vested benefits the Executive may have under any employee benefit plan of the Company through the Date of Termination, which vested benefits shall be paid and/or provided in accordance with the terms of such employee benefit plans (together, the "Accrued Benefit") on or before the time required by law but in no event more than 30 days after the Executive's Date of Termination.

5. Change in Control.

(a) Acceleration of Vesting. In the event a Notice of Termination of an Involuntary Termination occurs during the CIC Period, and subject to the Executive signing, within 60 days following the Notice of Termination, a Release and the Release becoming effective and non-revocable within such 60-day period, all stock options and stock-based awards held by the Executive as of the date of the Notice of Termination, shall vest and become exercisable or nonforfeitable. Notwithstanding the foregoing, if, at the time of a Change in Control, the Company determines in its sole discretion, in reliance upon an opinion of counsel in form and substance satisfactory to the Company, that the acceleration in the prior sentence would not be permissible under applicable law, then in lieu of the acceleration in the prior sentence, all stock options and stock-based awards held by the Executive as of the date of such Change in Control, shall vest and become exercisable or nonforfeitable as of the date of such Change in Control.

(b) Excise Tax.

(i) Anything in this Agreement to the contrary notwithstanding, in the event that any compensation, payment or distribution by the Company to or for the benefit of the Executive, whether paid or payable or distributed or distributable pursuant to the terms of this Agreement or otherwise (the "Parachute Payments"), would be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), the following provisions shall apply:

(A) If the Parachute Payments, reduced by the sum of (1) the Excise Tax and (2) the total of the Federal, state, and local income and employment taxes payable by the Executive on the amount of the Parachute Payments which are in excess of the Threshold Amount, are greater than or equal to the Threshold Amount, the Executive shall be entitled to the full benefits payable under this Agreement.

(B) If the Threshold Amount is less than (x) the Parachute Payments, but greater than (y) the Parachute Payments reduced by the sum of (1) the Excise Tax and (2) the total of the Federal, state, and local income and employment taxes on the amount of the Parachute Payments which are in excess of the Threshold Amount, then the Parachute Payments shall be reduced (but not below zero) to the extent necessary so that the sum of all Parachute Payments shall not exceed the Threshold Amount. In such event, the Parachute Payments shall be reduced in the following order: (1) cash payments not subject to Section 409A of the Code; (2) cash payments subject to Section 409A of the Code; (3) equity-based payments and acceleration; and (4) non-cash forms of benefits. To the extent any payment is to be made over time (*e.g.*, in installments, etc.), then the payments shall be reduced in reverse chronological order.

(ii) For the purposes of this Section 5(c), "Threshold Amount" shall mean three times the Executive's "base amount" within the meaning of Section 280G(b)(3) of the Code and the regulations promulgated thereunder less one dollar ($1.00); and "Excise Tax" shall mean the excise tax imposed by Section 4999 of the Code, and any interest or penalties incurred by the Executive with respect to such excise tax.

(iii) All calculations and determinations under Sections 5(c)(i) and 5(c)(ii) shall be made by an independent accounting firm or independent tax counsel appointed by the Company (the **"**Tax Counsel**"**) whose determinations shall be conclusive and binding on the Company and the Executive for all purposes. For purposes of making the calculations and determinations required by Sections 5(c)(i) and 5(c)(ii), the Tax Counsel may rely on reasonable, good faith assumptions and approximations concerning the application of Section 280G and Section 4999 of the Code. The Company and the Executive shall furnish the Tax Counsel with such information and documents as the Tax Counsel may reasonably request in order to make its determinations under Sections 5(c)(i) and 5(c)(ii). The Company shall bear all costs the Tax Counsel may reasonably incur in connection with its services.

(c) Definitions. For purposes of this Section 5, "Change in Control" shall mean any of the following:

(i) any "person," as such term is used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended (the "Act") (other than Parent, any of its subsidiaries, or any trustee, fiduciary or other person or entity holding securities under any employee benefit plan or trust of Parent or any of its subsidiaries), together with all "affiliates" and "associates" (as such terms are defined in Rule 12b-2 under the Act) of such person, shall become the "beneficial owner" (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, of securities of Parent representing 50 percent or more of the combined voting

power of the Company's then outstanding securities having the right to vote in an election of the Board ("Voting Securities") (in such case other than as a result of an acquisition of securities directly from Parent); or

(ii) the date a majority of the members of the Board is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of the Board before the date of the appointment or election; or

(iii) the consummation of (A) any consolidation or merger of Parent where the stockholders of Parent, immediately prior to the consolidation or merger, would not, immediately after the consolidation or merger, beneficially own (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, shares representing in the aggregate more than 50 percent of the voting shares of the company issuing cash or securities in the consolidation or merger (or of its ultimate parent corporation, if any), or (B) any sale or other transfer (in one transaction or a series of transactions contemplated or arranged by any party as a single plan) of all or substantially all of the assets of Parent.

Notwithstanding the foregoing, a "Change in Control" shall not be deemed to have occurred for purposes of the foregoing clause (i) solely as the result of an acquisition of securities by Parent which, by reducing the number of shares of Voting Securities outstanding, increases the proportionate number of Voting Securities beneficially owned by any person to 50 percent or more of the combined voting power of all of the then outstanding Voting Securities; provided, however, that if any person referred to in this sentence shall thereafter become the beneficial owner of any additional shares of Voting Securities (other than pursuant to a stock split, stock dividend, or similar transaction or as a result of an acquisition of securities directly from Parent) and immediately thereafter beneficially owns 50 percent or more of the combined voting power of all of the then outstanding Voting Securities, then a "Change in Control" shall be deemed to have occurred for purposes of the foregoing clause (i). For the avoidance of doubt, a migratory merger of Parent for the principal purpose of redomiciling Parent shall not constitute a Change in Control.

6. Section 409A.

(a) Anything in this Agreement to the contrary notwithstanding, if at the time of the Executive's separation from service within the meaning of Section 409A of the Code, the Company determines that the Executive is a "specified employee" within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that the Executive becomes entitled to under this Agreement on account of the Executive's separation from service would be considered deferred compensation subject to the 20 percent additional tax imposed pursuant to Section 409A(a) of the Code as a result of the application of Section 409A(a)(2)(B)(i) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after the Executive's separation from service, or (B) the Executive's death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the installments shall be payable in accordance with their original schedule. Solely for purposes of

Section 409A of the Code, each installment payment under this Agreement is considered a separate payment.

(b) All in-kind benefits provided and expenses eligible for reimbursement under this Agreement shall be provided by the Company or incurred by the Executive during the time periods set forth in this Agreement. All reimbursements shall be paid as soon as administratively practicable, but in no event shall any reimbursement be paid after the last day of the taxable year following the taxable year in which the expense was incurred. The amount of in-kind benefits provided or reimbursable expenses incurred in one taxable year shall not affect the in-kind benefits to be provided or the expenses eligible for reimbursement in any other taxable year. Such right to reimbursement or in-kind benefits is not subject to liquidation or exchange for another benefit.

(c) To the extent that any payment or benefit described in this Agreement constitutes "non-qualified deferred compensation" under Section 409A of the Code, and to the extent that such payment or benefit is payable upon the Executive's termination of employment, then such payments or benefits shall be payable only upon the Executive's "separation from service." The determination of whether and when a separation from service has occurred shall be made in accordance with the presumptions set forth in Treasury Regulation Section 1.409A-1(h).

(d) The parties intend that this Agreement will be administered in accordance with Section 409A of the Code. To the extent that any provision of this Agreement is ambiguous as to its compliance with Section 409A of the Code, the provision shall be read in such a manner so that all payments hereunder comply with Section 409A of the Code. The parties agree that this Agreement may be amended, as reasonably requested by either party, and as may be necessary to fully comply with Section 409A of the Code and all related rules and regulations in order to preserve the payments and benefits provided hereunder without additional cost to either party.

(e) The Company makes no representation or warranty and shall have no liability to the Executive or any other person if any provisions of this Agreement are determined to constitute deferred compensation subject to Section 409A of the Code but do not satisfy an exemption from, or the conditions of, such Section.

7. Proprietary Information, Noncompetition and Cooperation.

(a) Restrictive Covenants and Assignment of Inventions. The Executive has previously entered into the Employee Proprietary Information and Inventions Agreement as of March 14, 2016 (the "Confidentiality and Assignment Agreement"), attached hereto as Exhibit A, and agrees to continue to honor the obligations and restrictive covenants set forth in the Confidentiality and Assignment Agreement, the terms of which are incorporated by reference as material terms of this Agreement.

(b) Non-Competition and Non-Solicitation. In order to protect the Company's proprietary information and good will, during the Executive's employment with the Company and for a period of twelve (12) months following (i) the delivery of a Notice of Termination, in the case of an Involuntary Departure or (ii) the termination of the Executive's employment for any other reason (the "Restricted Period"), the Executive will not directly or indirectly, whether as owner, partner, shareholder, director, manager, consultant, agent, employee, co-venturer or otherwise, engage,

participate or invest in any Competing Business. For purposes hereof, the term "Competing Business" shall mean any entity engaged in the discovery, development or commercialization of CAS9 technology for human therapeutics. Notwithstanding the foregoing, nothing contained hereinabove or hereinbelow shall be deemed to prohibit the Executive from (i) acquiring, solely as an investment, shares of capital stock (or other interests) of any corporation (or other entity) not exceeding 2% of such corporation's (or other entity's) then outstanding shares of capital stock (or equity interest), or (ii) working for a line of business, division or unit of a larger entity that competes with the Company as long as the Executive's activities for such line of business, division or unit do not involve work by the Executive on matters that are directly competitive with the Company's business. In addition, during the Restricted Period, the Executive will not, directly or indirectly, in any manner, other than for the benefit of the Company (i) divert or take away customers of the Company or any of its suppliers; and/or (ii) solicit, entice, attempt to persuade any other employee or consultant of the Company to leave the Company for any reason (other than the termination of subordinate employees undertaken in the course of my employment with the Company). The Executive acknowledges and agrees that if the Executive violates any of the provisions of this paragraph 7(b), the running of the Restricted Period will be extended by the time during which the Executive engages in such violation(s).

(c) Litigation and Regulatory Cooperation. During and after the Executive's employment, the Executive shall use reasonable efforts to cooperate with the Company in the defense or prosecution of any claims or actions now in existence or that may be brought in the future against or on behalf of the Company that relate to events or occurrences that transpired while the Executive was employed by the Company. The Executive's cooperation in connection with such claims or actions shall include, but not be limited to, being available to meet with counsel to prepare for discovery or trial and to act as a witness on behalf of the Company at mutually convenient times. During and after the Executive's employment, the Executive shall use reasonable efforts to cooperate with the Company in connection with any investigation or review of any federal, state or local regulatory authority as any such investigation or review relates to events or occurrences that transpired while the Executive was employed by the Company. The Company shall reimburse the Executive for any reasonable out-of-pocket expenses incurred in connection with the Executive's performance of obligations pursuant to this Section 7(c).

(d) Injunction. The Executive agrees that it would be difficult to measure any damages caused to the Company that might result from any breach by the Executive of the promises set forth in this Section 7 and the Confidentiality and Assignment Agreement, and that in any event money damages would be an inadequate remedy for any such breach. Accordingly, subject to Section 8 of this Agreement, the Executive agrees that if the Executive breaches, or proposes to breach, any portion of this Agreement and the Confidentiality and Assignment Agreement, the Company shall be entitled, in addition to all other remedies that it may have, to an injunction or other appropriate equitable relief to restrain any such breach without showing or proving any actual damage to the Company.

(e) Protected Reporting; Defend Trade Secrets Act Immunity. Nothing in this Agreement or the Confidentiality and Assignment Agreement, and nothing in any policy or procedure, in any other confidentiality, employment, separation agreement or in any other document or communication from the Company limits the Executive's ability to file a charge or complaint with

any government agency concerning any acts or omissions that the Executive may believe constitute a possible violation of federal or state law or making other disclosures that are protected under the whistleblower provisions of applicable federal or state law regulation or affects the Executive's ability to communicate with any government agency or otherwise participate in any investigation or proceeding that may be conducted by a government agency, including by providing documents or other information, without notice to the Company. In addition, for the avoidance of doubt, pursuant to the federal Defend Trade Secrets Act of 2016, the Executive shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that (i) is made (A) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (B) solely for the purpose of reporting or investigating a suspected violation of law; or (ii) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

8. Arbitration of Disputes. Any controversy or claim arising out of or relating to this Agreement or the breach thereof or otherwise arising out of the Executive's employment or the termination of that employment (including, without limitation, any claims of unlawful employment discrimination whether based on age or otherwise) shall, to the fullest extent permitted by law, be settled by arbitration in any forum and form agreed upon by the parties or, in the absence of such an agreement, under the auspices of the American Arbitration Association ("AAA") in Boston, Massachusetts in accordance with the Employment Arbitration Rules of the AAA, including, but not limited to, the rules and procedures applicable to the selection of arbitrators. In the event that any person or entity other than the Executive or the Company may be a party with regard to any such controversy or claim, such controversy or claim shall be submitted to arbitration subject to such other person or entity's agreement. Judgment upon the award rendered by the arbitrator may be entered in any court having jurisdiction thereof. This Section 8 shall be specifically enforceable. Notwithstanding the foregoing, this Section 8 shall not preclude either party from pursuing a court action for the sole purpose of obtaining a temporary restraining order or a preliminary injunction in circumstances in which such relief is appropriate; provided that any other relief shall be pursued through an arbitration proceeding pursuant to this Section 8.

9. Consent to Jurisdiction. To the extent that any court action is permitted consistent with or to enforce Section 8 of this Agreement, the parties hereby agree that the Middlesex County Superior Court of The Commonwealth of Massachusetts shall have exclusive jurisdiction of such dispute. Accordingly, with respect to any such court action, the Executive submits to the personal jurisdiction of such courts.

10. Integration. This Agreement and the Confidentiality and Assignment Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements, including the Prior Agreement, between the Parties concerning such subject matter; provided that, the restrictions set forth in Section 4 of the Confidentiality and Assignment Agreement shall not apply following the Restricted Period.

11. Withholding. All payments made by the Company to the Executive under this Agreement shall be net of any tax or other amounts required to be withheld by the Company under applicable law.

12. Successor to the Executive. This Agreement shall inure to the benefit of and be enforceable by the Executive's personal representatives, executors, administrators, heirs, distributees, devisees and legatees. In the event of the Executive's death after his termination of employment but prior to the completion by the Company of all payments due him under this Agreement, the Company shall continue such payments to the Executive's beneficiary designated in writing to the Company prior to his death (or to his estate, if the Executive fails to make such designation).

13. Enforceability. If any portion or provision of this Agreement (including, without limitation, any portion or provision of any section of this Agreement) shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

14. Survival. The provisions of this Agreement and the Confidentiality and Assignment Agreement shall survive the termination of this Agreement and/or the termination of the Executive's employment to the extent necessary to effectuate the terms contained herein.

15. Waiver. No waiver of any provision hereof shall be effective unless made in writing and signed by the waiving party. The failure of any party to require the performance of any term or obligation of this Agreement, or the waiver by any party of any breach of this Agreement, shall not prevent any subsequent enforcement of such term or obligation or be deemed a waiver of any subsequent breach.

16. Notices. Any notices, requests, demands and other communications provided for by this Agreement shall be sufficient if in writing and delivered in person or sent by a nationally recognized overnight courier service or by registered or certified mail, postage prepaid, return receipt requested, to the Executive at the last address the Executive has filed in writing with the Company or, in the case of the Company, at its main offices, attention of the CEO, at the main offices of Crispr AG.

17. Amendment. This Agreement may be amended or modified only by a written instrument signed by the Executive and by a duly authorized representative of the Company.

18. Governing Law. This is a Massachusetts contract and shall be construed under and be governed in all respects by the laws of the Commonwealth of Massachusetts, without giving effect to the conflict of laws principles of such Commonwealth. With respect to any disputes concerning federal law, such disputes shall be determined in accordance with the law as it would be interpreted and applied by the United States Court of Appeals for the First Circuit.

19. Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original; but such counterparts shall together constitute one and the same document.

20. Assignment and Transfer by the Company. The Company will have the right to assign and/or transfer this Agreement to its affiliates, successors and assigns. The Executive expressly consents to be bound by the provisions of this Agreement for the benefit of the Company or any

parent, subsidiary or affiliate to whose employ the Executive may be transferred without the necessity that this Agreement be re-signed at the time of such transfer.

21. Attorneys' Fees. The Company will pay on the Executive's behalf the reasonable legal fees incurred by the Executive in connection with the negotiation of this Agreement in an amount not to exceed $7,500.

[Remainder of page intentionally left blank. Signature page follows.]

IN WITNESS WHEREOF, the parties have executed this Agreement effective on the date and year first above written.

CRISPR THERAPEUTICS, INC.

By: /s/ Rodger Novak
Its: CEO

EXECUTIVE

/s/ Marc Becker
Marc Becker

EXHIBIT A

Employee Proprietary Information and Inventions Agreement

EXHIBIT 10.12

EMPLOYMENT AGREEMENT

This Employment Agreement ("Agreement") is made this 6th day of October, 2016, between CRISPR Therapeutics, Inc., a Delaware corporation (the "Company"), and Samarth Kulkarni, (the "Executive" and, together with the Company, the "Parties" or each individually, a "Party").

WHEREAS, upon completion of the first underwritten public offering of the equity securities of Parent under the Securities Act of 1933, as amended (the "IPO"), CRISPR Therapeutics AG ("Parent") will be subject to the Swiss Ordinance act against excessive compensation in listed companies;

WHEREAS, the Company and the Executive are parties to that Offer Letter dated July 10, 2015 (the "Prior Agreement"), and desire to amend and restate the Prior Agreement in its entirety, effective upon and subject to the consummation of the IPO (the "Effective Date") on the terms contained herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Position and Duties. During the period which the Executive is employed pursuant to the Prior Agreement and this Agreement (the "Employment Period"), the Executive shall serve as the Chief Business Officer of the Company, and shall have responsibilities and duties consistent with such position and such other responsibilities and duties which are not inconsistent with the Executive's skills and experience or his ability to discharge his responsibilities as Chief Business Officer as may from time to time be prescribed by the Chief Executive Officer of the Company (the "CEO"). The Executive shall devote the Executive's full working time and efforts to the business and affairs of the Company, except as otherwise permitted under Section 3(b)(i). Notwithstanding the foregoing, the Executive may engage in charitable or other community activities, as long as such services and activities are disclosed to the Board of Directors of Parent (the "Board") and do not materially interfere with the Executive's performance of the Executive's duties to the Company as provided in this Agreement. During the Employment Period, the Executive's principal place of employment will be in the Greater Boston, Massachusetts area; however, the Company may require the Executive to travel temporarily to other locations in connection with the Company's business.

2. Compensation and Related Matters.

(a) Base Salary. During the Employment Period, the Company shall pay the Executive, as compensation for the performance of the Executive's duties and obligations under this Agreement, an annual base salary of $360,000, payable in a manner that is consistent with the Company's usual payroll practices for senior executives. The Executive's Base Salary shall be reviewed annually by the Board or the Compensation, Nomination and Corporate Governance Committee of the Board (the "Committee") for adjustment. Such adjustment, if any, shall be within the sole discretion of the Board or, to the extent delegated by the Board, the Committee. The annual base salary in effect at any given time is referred to herein as "Base Salary." The Base Salary shall not be reduced at any time without the express written consent of the Executive.

(b) Annual Bonus. During the Employment Period, the Executive shall be eligible to receive an annual target bonus (a "Bonus") if, as reasonably determined by the Board or, to the extent delegated by the Board, the Committee one or more of the performance targets annually determined by the Board or the Committee ("Performance Targets") is achieved. If all of the Performance Targets are achieved, the Bonus will equal not less than 40 percent of the Executive's Base Salary (the "Target Bonus"). In the event that less than all of the Performance Targets are met by Executive, the Bonus paid in respect of this paragraph may be less than the Target Bonus. Except as set forth in Section 3(b) or 4 hereof, the Executive must be employed by the Company on the final day of the year with respect to which any such Bonus is earned, and any such Bonus shall be paid not later than 2 ½ months after the end of such calendar year. The Executive's target bonus opportunity as a percentage of Base Salary may be reviewed periodically and adjusted in the sole discretion of the Board or, to the extent delegated by the Board, the Committee. After any such adjustment, the term "Target Bonus" shall refer to the increased amount. The Target Bonus shall not be reduced at any time without the express prior written consent of the Executive.

(c) Equity Compensation. The Executive shall be eligible to participate in Parent's equity incentive plan according to its terms and conditions, as defined by Parent from time to time in its sole discretion. Both entitlement to any equity awards and the amount shall be determined by Parent in its sole discretion.

(d) Expenses. During the Employment Period, the Executive shall be entitled to receive reimbursement for all reasonable expenses incurred by him in performing services hereunder, in accordance with the policies and procedures then in effect and established by the Company for its senior executive officers.

(e) Other Benefits. During the Employment Period, the Executive shall be entitled to participate in or receive benefits under any employee benefit plan or arrangement currently maintained or which may, in the future, be made available by the Company generally to its executives and key management employees, subject to and on a basis consistent with the terms, conditions and overall administration of such plan or arrangement. Any payments or benefits payable to the Executive under a plan or arrangement referred to in this Section 2(e) in respect of any calendar year during which the Executive is employed by the Company for less than the whole of such year shall, unless otherwise provided in the applicable plan or arrangement, be prorated in accordance with the number of days in such calendar year during which the Executive is so employed. Should any such payments or benefits accrue on a fiscal (rather than calendar) year, then the proration in the preceding sentence shall be on the basis of a fiscal year rather than calendar year.

(f) Vacations. The Executive shall be entitled to accrue up to 20 paid vacation days in each year, which shall be accrued ratably. In other respects, the Company's vacation policy as the same may then be in effect shall apply to vacations.

(g) Approval by Shareholders' Meeting and Mandatory Law. Any compensation (including bonus, equity awards and fringe benefits) to be paid under this Agreement, is, to the extent required by Swiss laws and the Parent's Article of Association, subject to approval by the general meeting of shareholders' of Parent. In the event of a conflict between the Agreement and applicable

mandatory Swiss law, the Company shall have the right to unilaterally modify the Agreement solely to the extent necessary to comply with mandatory law with immediate effect.

3. Termination.

(a) General. The Executive's employment shall continue until it is terminated in accordance with this Agreement. Upon service of a Notice of Termination (as defined below), the Executive shall resign from all offices and functions assumed in relation to this Agreement effective upon first request of the Company but shall remain entitled to receive the payments and benefits described in Sections 3(b), 4 and 5(a), to the extent applicable.

(b) Termination by the Company without Cause or by Executive for Good Reason; Notice Period. In the event that the Company elects to terminate the Executive's employment without Cause (as defined below) or the Executive elects to resign from Executive's employment with Good Reason (as defined below) (in either case an "Involuntary Departure"), the Party electing to end the employment relationship shall provide the other Party with a Notice of Termination (as defined below) of the Involuntary Departure specifying a notice period (the "Notice Period") of six (6) months, effective as per the end of a calendar month; provided that, in the case that the Notice of Termination of an Involuntary Departure is provided within the 12 month period following a Change in Control (the "Change in Control Period" or "CIC Period"), then the Notice Period shall be 12 months.

(i) During the Notice Period following a Notice of Termination of an Involuntary Departure, the Executive shall continue to be available to provide services to the extent requested by the Company or the Board, provided at any time during the Notice Period the Company may replace the Executive's position and/or direct the Executive to perform other or reduced work; provided further that, upon the 15th day following such Notice of Termination (or such earlier date as the Company shall determine in its sole discretion), the Company shall release the Executive from his working obligations (except to the extent the parties otherwise agree) and place the Executive on garden leave for the remainder of the Notice Period ("Garden Leave"). During such Garden Leave, the Executive (A) may enter into consulting arrangements and accept board positions provided such outside business activities do not violate Executive's obligations under Section 7 and (B) shall be free to engage in other employment provided that such employment does not violate Executive's obligations under Section 7. The Company shall be prohibited during the Notice Period from reducing any compensation to which the Executive is entitled to receive during the Notice Period pursuant to Section 3(b)(ii).

(ii) With respect to compensation during the Notice Period following a Notice of Termination of an Involuntary Departure, and subject to (i) the Executive signing, within 30 days following the date that the Notice of Termination is given, a Release of Claims in a form reasonably required by the Company (the "Release") and (ii) Section 6, the Executive: (A) shall continue to receive the Base Salary (without regard to any reduction in Base Salary that would provide a basis for Executive's Good Reason resignation) and employee benefits consistent with the Company's then existing benefits plans and programs at the same costs as such benefits are provided to similarly situated active employees; (B) shall

be entitled to receive an amount equal to the Target Bonus (without regard to any reduction in Target Bonus that would provide a basis for Executive's Good Reason resignation) with respect to the Notice Period (i.e., a prorated Target Bonus based upon the number of days in the applicable Notice Period), which prorated Target Bonus amount shall be payable in a lump sum no more than 60 days after the Notice of Termination (provided that if the 60-day period begins in one calendar year and ends in a second calendar year, such Target Bonus shall be paid in the second calendar year); (C) shall continue to vest through the last day of the Notice Period in any equity awards outstanding as of the date the Notice of Termination is given; provided, and notwithstanding the foregoing, Section 5(a) may apply if the Notice of Termination of an Involuntary Departure occurs during a CIC Period and (D) shall not continue to accrue vacation under Section 2(f).

(iii) If during the Notice Period following a Notice of Termination of an Involuntary Departure, the Executive breaches any of the material provisions contained in Section 7(b) of this Agreement or the material obligations in the Confidentiality and Assignment Agreement, then the Company shall provide a restated Notice of Termination and the Notice Period shall end on the earlier date set forth in the restated Notice of Termination (provided that such date shall be no earlier than the date upon which the restated Notice of Termination is delivered).

(c) Death. The Executive's employment hereunder shall terminate upon his death.

(d) Disability. The Company may terminate the Executive's employment if the Executive is disabled and unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation for a period of 180 days (which need not be consecutive) in any 12-month period, provided that, if the Company maintains a long-term disability plan for the Company's employees at the time of such termination, the Executive's disability would, if the Executive otherwise qualified for disability benefits under such long-term disability plan, result in the Executive receiving benefits coverage for the longest period of time provided under such long-term disability plan. If any question shall arise as to whether during any period the Executive is disabled so as to be unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation, the Executive may, and at the request of the Company shall, submit to the Company a certification in reasonable detail by a physician mutually acceptable to Executive and Company as to whether the Executive is so disabled or how long such disability is expected to continue, and such certification shall for the purposes of this Agreement be conclusive of the issue. If the Executive and the Company cannot agree as to a qualified physician, each shall appoint such a physician and those two physicians shall select a third who shall make such determination in writing. The determination of disability made in writing to the Company and the Executive shall be final and conclusive for all purposes of this Agreement. The Executive shall cooperate with any reasonable request of the physician in connection with such certification. Nothing in this Section 3(d) shall be construed to waive the Executive's rights, if any, under existing law including, without limitation, the Family and Medical Leave Act of 1993, 29 U.S.C. §2601 *et seq*. and the Americans with Disabilities Act, 42 U.S.C. §12101 *et seq.*

(e) Termination by Company for Cause. The Company may terminate the Executive's employment hereunder for Cause.

(f) Termination by the Executive Without Good Reason. The Executive may terminate his employment hereunder at any time without Good Reason.

(g) Definitions:

(i) Cause. For purposes of this Agreement, "Cause" shall mean: (i) conduct by the Executive constituting a material act of misconduct in connection with the performance of the Executive's duties that results in material harm to the Company, including, without limitation, misappropriation of funds or property of the Company or any of its subsidiaries or affiliates other than the occasional, customary and de minimis use of Company property for personal purposes; (ii) the Executive's indictment for, conviction of or plea of guilty or nolo contendre to (A) any felony; or (B) a misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) continued non-performance by the Executive of the Executive's material responsibilities hereunder (other than by reason of the Executive's physical or mental illness, incapacity or disability) which has continued for more than 30 days following written notice of such non-performance from the CEO; (iv) a material breach by the Executive of any of the material provisions contained in Section 7 of this Agreement or the material obligations arising pursuant to the Confidentiality and Assignment Agreement (as hereinafter defined); (v) a material violation by the Executive of any of the Company's written employment policies, which if possible to cure is not cured within 30 days following written notice of such violation; or (vi) failure to cooperate with a bona fide internal investigation or an investigation by regulatory or law enforcement authorities, after being instructed by the Company to cooperate, or the willful destruction or failure to preserve documents or other materials known to be relevant to such investigation or the inducement of others to fail to cooperate or to produce documents or other materials in connection with such investigation; provided that the exercise by Executive of his rights under the United States Constitution shall not constitute a breach of this subsection (vi).

(ii) Good Reason. For purposes of this Agreement, "Good Reason" shall mean that the Executive has complied with the "Good Reason Process" (hereinafter defined) following the occurrence of any of the following events: (i) a material diminution in the Executive's responsibilities, authority or duties; (ii) a material reduction in Base Salary or Target Bonus which has not been consented to by the Executive; (iii) a material change in the principal geographic location at which the Executive provides services to the Company outside of the Greater Boston, Massachusetts area; or (iv) the material breach of this Agreement by the Company (each a "Good Reason Condition"). Good Reason Process shall mean that (i) the Executive reasonably determines in good faith that a Good Reason Condition has occurred; (ii) the Executive notifies the Company in writing of the occurrence of the Good Reason Condition within 90 days of the occurrence of such condition; (iii) the Executive cooperates in good faith with the Company's efforts, for a period not less than 30 days following such notice (the "Cure Period"), to remedy the Good Reason Condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) the Executive terminates employment within 60 days after the end of the Cure Period. If the

Company cures the Good Reason Condition during the Cure Period, Good Reason shall be deemed not to have occurred.

(iii) Notice of Termination. Except for termination as specified in Section 3(c), any termination of the Executive's employment by either the Company or the Executive shall be communicated by written Notice of Termination to the other party hereto. For purposes of this Agreement, a "Notice of Termination" shall mean a notice which shall indicate the specific termination provision in this Agreement relied upon.

(iv) Date of Termination. For purposes of this Agreement, "Date of Termination" shall mean: (i) if the Executive's employment is terminated by death, the date of death; (ii) if the Executive's employment is terminated on account of disability under Section 3(d) or by the Company for Cause under Section 3(e), the date on which Notice of Termination is given; (iii) if the Executive's employment terminates as a result of an Involuntary Departure under Section 3(b), the last day of the Notice Period; (iv) if the Executive's employment is terminated by the Executive under Section 3(f) without Good Reason, 30 days after the date on which a Notice of Termination is given (unless the Company waives all or part of the thirty (30) day period).

4. Compensation Upon Termination. If the Executive's employment with the Company is terminated for any reason, the Company shall pay or provide to the Executive (or to the Executive's authorized representative or estate) (i) any Base Salary earned through the Date of Termination; (ii) unpaid expense reimbursements (subject to, and in accordance with Section 2(d) of this Agreement); (iii) subject to Section 3(b)(ii)(D), unused vacation that accrued through the Date of Termination; (iv) except in the case the Executive's employment is terminated by the Company for Cause under Section 3(e), any unpaid Bonus earned for the year prior to the year in which the Notice of Termination is delivered; (v) a prorated portion of the Bonus the Executive would have earned for the year in which the Notice of Termination is delivered, based on actual performance as determined in good faith by the Board or the Committee (with such proration based on the portion of such year elapsed prior to delivery of the Notice of Termination); and (vi) any vested benefits the Executive may have under any employee benefit plan of the Company through the Date of Termination, which vested benefits shall be paid and/or provided in accordance with the terms of such employee benefit plans (together, the "Accrued Benefit") on or before the time required by law but in no event more than 30 days after the Executive's Date of Termination, provided that the amounts payable under clauses (iv) and (v), if any, shall be paid at the same time Bonuses for the given year are paid to the Company's executive employees generally.

5. Change in Control.

(a) Acceleration of Vesting. In the event a Notice of Termination of an Involuntary Termination occurs during the CIC Period or within two months prior to a Change in Control, or in the event the Executive delivers a Notice of Termination for any reason not sooner than 6 months after the occurrence of a Change in Control, and subject to the Executive signing, within 60 days following the Notice of Termination, a Release and the Release becoming effective and non-revocable within such 60-day period, all stock options and stock-based awards held by the Executive as of the date of the Notice of Termination, shall vest and become exercisable or nonforfeitable.

Notwithstanding the foregoing, if, at the time of a Change in Control, the Company determines in its sole discretion, in reliance upon an opinion of counsel in form and substance satisfactory to the Company, that the acceleration in the prior sentence would not be permissible under applicable law, then in lieu of the acceleration in the prior sentence, all stock options and stock-based awards held by the Executive as of the date of such Change in Control, shall vest and become exercisable or nonforfeitable as of the date of such Change in Control.

(b) Excise Tax.

(i) Anything in this Agreement to the contrary notwithstanding, in the event that any compensation, payment or distribution by the Company to or for the benefit of the Executive, whether paid or payable or distributed or distributable pursuant to the terms of this Agreement or otherwise, in each case, that are treated as contingent on a "change in ownership of control" within the meaning of Treasury Regulations Section 1.280G-1 (the "Parachute Payments"), would be subject to the excise tax imposed by Section 4999 of the Code (including any interest or penalties incurred by the Executive with respect to such excise tax, the "Excise Tax"), the following provisions shall apply:

(A) If the Parachute Payments, reduced by the sum of (1) the Excise Tax and (2) the total of the Federal, state, and local income and employment taxes (for the avoidance of doubt, without duplication of the Excise Tax) payable by the Executive on the amount of the Parachute Payments which are in excess of the Threshold Amount, are greater than or equal to the Threshold Amount, the Executive shall be entitled to the full benefits payable under this Agreement.

(B) If the Threshold Amount is less than (x) the Parachute Payments, but greater than (y) the Parachute Payments reduced by the sum of (1) the Excise Tax and (2) the total of the Federal, state, and local income and employment taxes on the amount of the Parachute Payments which are in excess of the Threshold Amount, then the Parachute Payments shall be reduced (but not below zero) to the minimum extent necessary so that the sum of all Parachute Payments shall not exceed the Threshold Amount. In such event, the Parachute Payments shall be reduced in the following order: (1) cash severance payments not subject to Section 409A of the Code; (2) non-cash severance payments other than equity acceleration that are exempt from Section 409A of the Code; (3) other cash or non-cash payments that are exempt from Section 409A; and (4) other payments or benefits (reduced in a manner that complies with Section 409A of the Code). To the extent any payment is to be made over time (*e.g.*, in installments, etc.), then the payments shall be reduced in reverse chronological order.

(ii) For the purposes of this Section 5(c), "Threshold Amount" shall mean three times the Executive's "base amount" within the meaning of Section 280G(b)(3) of the Code and the regulations promulgated thereunder less one dollar ($1.00).

(iii) All calculations and determinations under Sections 5(c)(i) and 5(c)(ii) shall be made by an independent accounting firm or independent tax counsel appointed by the Company (the **"**Tax Counsel**"**) whose determinations shall be conclusive and binding on the

Company and the Executive for all purposes. For purposes of making the calculations and determinations required by Sections 5(c)(i) and 5(c)(ii), the Tax Counsel may rely on reasonable, good faith assumptions and approximations concerning the application of Section 280G and Section 4999 of the Code. The Company and the Executive shall furnish the Tax Counsel with such information and documents as the Tax Counsel may reasonably request in order to make its determinations under Sections 5(c)(i) and 5(c)(ii). The Company shall bear all costs the Tax Counsel may reasonably incur in connection with its services.

(c) Definitions. For purposes of this Section 5, "Change in Control" shall mean any of the following:

(i) any "person," as such term is used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended (the "Act") (other than Parent, any of its subsidiaries, or any trustee, fiduciary or other person or entity holding securities under any employee benefit plan or trust of Parent or any of its subsidiaries), together with all "affiliates" and "associates" (as such terms are defined in Rule 12b-2 under the Act) of such person, shall become the "beneficial owner" (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, of securities of Parent representing 50 percent or more of the combined voting power of the Company's then outstanding securities having the right to vote in an election of the Board ("Voting Securities") (in such case other than as a result of an acquisition of securities directly from Parent); or

(ii) the date a majority of the members of the Board is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of the Board before the date of the appointment or election; or

(iii) the consummation of (A) any consolidation or merger of Parent where the stockholders of Parent, immediately prior to the consolidation or merger, would not, immediately after the consolidation or merger, beneficially own (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, shares representing in the aggregate more than 50 percent of the voting shares of the company issuing cash or securities in the consolidation or merger (or of its ultimate parent corporation, if any), or (B) any sale or other transfer (in one transaction or a series of transactions contemplated or arranged by any party as a single plan) of all or substantially all of the assets of Parent.

Notwithstanding the foregoing, a "Change in Control" shall not be deemed to have occurred for purposes of the foregoing clause (i) solely as the result of an acquisition of securities by Parent which, by reducing the number of shares of Voting Securities outstanding, increases the proportionate number of Voting Securities beneficially owned by any person to 50 percent or more of the combined voting power of all of the then outstanding Voting Securities; provided, however, that if any person referred to in this sentence shall thereafter become the beneficial owner of any additional shares of Voting Securities (other than pursuant to a stock split, stock dividend, or similar transaction or as a result of an acquisition of securities directly from Parent) and immediately thereafter beneficially owns 50 percent or more of the combined voting power of all of the then outstanding Voting Securities, then a "Change in Control" shall be deemed to have occurred for purposes of the foregoing

clause (i). For the avoidance of doubt, a migratory merger of Parent for the principal purpose of redomiciling Parent shall not constitute a Change in Control.

6. Section 409A.

(a) Anything in this Agreement to the contrary notwithstanding, if at the time of the Executive's separation from service within the meaning of Section 409A of the Code, the Company determines that the Executive is a "specified employee" within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that the Executive becomes entitled to under this Agreement on account of the Executive's separation from service would be considered deferred compensation subject to the 20 percent additional tax imposed pursuant to Section 409A(a) of the Code as a result of the application of Section 409A(a)(2)(B)(i) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after the Executive's separation from service, or (B) the Executive's death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the installments shall be payable in accordance with their original schedule. Solely for purposes of Section 409A of the Code, each installment payment under this Agreement is considered a separate payment.

(b) All in-kind benefits provided and expenses eligible for reimbursement under this Agreement shall be provided by the Company or incurred by the Executive during the time periods set forth in this Agreement. All reimbursements shall be paid as soon as administratively practicable, but in no event shall any reimbursement be paid after the last day of the taxable year following the taxable year in which the expense was incurred. The amount of in-kind benefits provided or reimbursable expenses incurred in one taxable year shall not affect the in-kind benefits to be provided or the expenses eligible for reimbursement in any other taxable year. Such right to reimbursement or in-kind benefits is not subject to liquidation or exchange for another benefit.

(c) To the extent that any payment or benefit described in this Agreement constitutes "non-qualified deferred compensation" under Section 409A of the Code, and to the extent that such payment or benefit is payable upon the Executive's termination of employment, then such payments or benefits shall be payable only upon the Executive's "separation from service." The determination of whether and when a separation from service has occurred shall be made in accordance with the presumptions set forth in Treasury Regulation Section 1.409A-1(h).

(d) The parties intend that this Agreement will be administered in accordance with Section 409A of the Code. To the extent that any provision of this Agreement is ambiguous as to its compliance with Section 409A of the Code, the provision shall be read in such a manner so that all payments hereunder comply with Section 409A of the Code. The parties agree that this Agreement may be amended, as reasonably requested by either party, and as may be necessary to fully comply with Section 409A of the Code and all related rules and regulations in order to preserve the payments and benefits provided hereunder without additional cost to either party.

(e) The Company makes no representation or warranty and shall have no liability to the Executive or any other person if any provisions of this Agreement are determined to constitute

deferred compensation subject to Section 409A of the Code but do not satisfy an exemption from, or the conditions of, such Section.

7. Proprietary Information, Noncompetition and Cooperation.

(a) Restrictive Covenants and Assignment of Inventions. The Executive has previously entered into the Employee Proprietary Information and Inventions Agreement as of July 14, 2016 (the "Confidentiality and Assignment Agreement"), attached hereto as Exhibit A, and agrees to continue to honor the obligations and restrictive covenants set forth in the Confidentiality and Assignment Agreement, the terms of which are incorporated by reference as material terms of this Agreement.

(b) Non-Competition and Non-Solicitation. In order to protect the Company's proprietary information and good will, during the Executive's employment with the Company and for a period of twelve (12) months following (i) the delivery of a Notice of Termination, in the case of an Involuntary Departure or (ii) the termination of the Executive's employment for any other reason (the "Restricted Period"), the Executive will not directly or indirectly, whether as owner, partner, shareholder, director, manager, consultant, agent, employee, co-venturer or otherwise, engage, participate or invest in any Competing Business. For purposes hereof, the term "Competing Business" shall mean any entity engaged in the discovery, development or commercialization of CAS9 technology for human therapeutics. Notwithstanding the foregoing, nothing contained hereinabove or hereinbelow shall be deemed to prohibit the Executive from (i) acquiring, solely as an investment, shares of capital stock (or other interests) of any corporation (or other entity) not exceeding 2% of such corporation's (or other entity's) then outstanding shares of capital stock (or equity interest), or (ii) working for a line of business, division or unit of a larger entity that competes with the Company as long as the Executive's activities for such line of business, division or unit do not involve work by the Executive on matters that are directly competitive with the Company's business. In addition, during the Restricted Period, the Executive will not, directly or indirectly, in any manner, other than for the benefit of the Company (i) divert or take away customers of the Company or any of its suppliers; and/or (ii) solicit, entice, attempt to persuade any other employee or consultant of the Company to leave the Company for any reason (other than the termination of subordinate employees undertaken in the course of my employment with the Company). The Executive acknowledges and agrees that if the Executive violates any of the provisions of this paragraph 7(b), the running of the Restricted Period will be extended by the time during which the Executive engages in such violation(s).

(c) Litigation and Regulatory Cooperation. During and after the Executive's employment, the Executive shall use reasonable efforts to cooperate with the Company in the defense or prosecution of any claims or actions now in existence or that may be brought in the future against or on behalf of the Company that relate to events or occurrences that transpired while the Executive was employed by the Company. The Executive's cooperation in connection with such claims or actions shall include, but not be limited to, being available to meet with counsel to prepare for discovery or trial and to act as a witness on behalf of the Company at mutually convenient times. During and after the Executive's employment, the Executive shall use reasonable efforts to cooperate with the Company in connection with any investigation or review of any federal, state or local regulatory authority as any such investigation or review relates to events or occurrences that

transpired while the Executive was employed by the Company. The Company shall reimburse the Executive for any reasonable out-of-pocket expenses incurred in connection with the Executive's performance of obligations pursuant to this Section 7(c).

(d) Injunction. The Executive agrees that it would be difficult to measure any damages caused to the Company that might result from any breach by the Executive of the promises set forth in Section 7(a) and (b) and in the Confidentiality and Assignment Agreement, and that in any event money damages would be an inadequate remedy for any such breach. Accordingly, subject to Section 8 of this Agreement, the Executive agrees that if the Executive breaches, or proposes to breach, any portion of this Agreement and the Confidentiality and Assignment Agreement, the Company shall be entitled, in addition to all other remedies that it may have, to an injunction or other appropriate equitable relief to restrain any such breach without showing or proving any actual damage to the Company.

(e) Protected Reporting; Defend Trade Secrets Act Immunity. Nothing in this Agreement or the Confidentiality and Assignment Agreement, and nothing in any policy or procedure, in any other confidentiality, employment, separation agreement or in any other document or communication from the Company limits the Executive's ability to file a charge or complaint with any government agency concerning any acts or omissions that the Executive may believe constitute a possible violation of federal or state law or making other disclosures that are protected under the whistleblower provisions of applicable federal or state law regulation or affects the Executive's ability to communicate with any government agency or otherwise participate in any investigation or proceeding that may be conducted by a government agency, including by providing documents or other information, without notice to the Company. In addition, for the avoidance of doubt, pursuant to the federal Defend Trade Secrets Act of 2016, the Executive shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that (i) is made (A) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (B) solely for the purpose of reporting or investigating a suspected violation of law; or (ii) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

8. Arbitration of Disputes. Any controversy or claim arising out of or relating to this Agreement or the breach thereof or otherwise arising out of the Executive's employment or the termination of that employment (including, without limitation, any claims of unlawful employment discrimination whether based on age or otherwise) shall, to the fullest extent permitted by law, be settled by arbitration in any forum and form agreed upon by the parties or, in the absence of such an agreement, under the auspices of the American Arbitration Association ("AAA") in Boston, Massachusetts in accordance with the Employment Arbitration Rules of the AAA, including, but not limited to, the rules and procedures applicable to the selection of arbitrators. In the event that any person or entity other than the Executive or the Company may be a party with regard to any such controversy or claim, such controversy or claim shall be submitted to arbitration subject to such other person or entity's agreement. Judgment upon the award rendered by the arbitrator may be entered in any court having jurisdiction thereof. This Section 8 shall be specifically enforceable. Notwithstanding the foregoing, this Section 8 shall not preclude either party from pursuing a court action for the sole purpose of obtaining a temporary restraining order or a preliminary injunction in

circumstances in which such relief is appropriate; provided that any other relief shall be pursued through an arbitration proceeding pursuant to this Section 8.

9. Consent to Jurisdiction. To the extent that any court action is permitted consistent with or to enforce Section 8 of this Agreement, the parties hereby agree that the Middlesex County Superior Court of The Commonwealth of Massachusetts shall have jurisdiction of such dispute. Accordingly, with respect to any such court action, the Executive submits to the personal jurisdiction of such courts.

10. Integration. This Agreement and the Confidentiality and Assignment Agreement constitute the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements, including the Prior Agreement, between the Parties concerning such subject matter; provided that, the restrictions set forth in Section 4 of the Confidentiality and Assignment Agreement shall not apply following the Restricted Period.

11. Withholding. All payments made by the Company to the Executive under this Agreement shall be net of any tax or other amounts required to be withheld by the Company under applicable law.

12. Successor to the Executive. This Agreement shall inure to the benefit of and be enforceable by the Executive's personal representatives, executors, administrators, heirs, distributees, devisees and legatees. In the event of the Executive's death after his termination of employment but prior to the completion by the Company of all payments due him under this Agreement, the Company shall continue such payments to the Executive's beneficiary designated in writing to the Company prior to his death (or to his estate, if the Executive fails to make such designation).

13. Enforceability. If any portion or provision of this Agreement (including, without limitation, any portion or provision of any section of this Agreement) shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

14. Survival. The provisions of this Agreement and the Confidentiality and Assignment Agreement shall survive the termination of this Agreement and/or the termination of the Executive's employment to the extent necessary to effectuate the terms contained herein.

15. Waiver. No waiver of any provision hereof shall be effective unless made in writing and signed by the waiving party. The failure of any party to require the performance of any term or obligation of this Agreement, or the waiver by any party of any breach of this Agreement, shall not prevent any subsequent enforcement of such term or obligation or be deemed a waiver of any subsequent breach.

16. Notices. Any notices, requests, demands and other communications provided for by this Agreement shall be sufficient if in writing and delivered in person or sent by a nationally recognized overnight courier service or by registered or certified mail, postage prepaid, return receipt requested, to the Executive at the last address the Executive has filed in writing with the Company or,

in the case of the Company, at its main offices, attention of the CEO and a copy of such notice shall be sent to Crispr AG, Attention: Chief Financial Officer, at the main offices of Crispr AG.

17. Amendment. This Agreement may be amended or modified only by a written instrument signed by the Executive and by a duly authorized representative of the Company.

18. Governing Law. This is a Massachusetts contract and shall be construed under and be governed in all respects by the laws of the Commonwealth of Massachusetts, without giving effect to the conflict of laws principles of such Commonwealth. With respect to any disputes concerning federal law, such disputes shall be determined in accordance with the law as it would be interpreted and applied by the United States Court of Appeals for the First Circuit.

19. Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original; but such counterparts shall together constitute one and the same document.

20. Assignment and Transfer by the Company. The Company will have the right to assign and/or transfer this Agreement to its affiliates, successors and assigns. The Executive expressly consents to be bound by the provisions of this Agreement for the benefit of the Company or any parent, subsidiary or affiliate to whose employ the Executive may be transferred without the necessity that this Agreement be re-signed at the time of such transfer. The Company shall cause any successor (whether direct or indirect and whether by purchase, merger, consolidation, liquidation or otherwise) to all or substantially all of the Company's business and/or assets to assume the Company's obligations under this Agreement and the Company's failure to cause any such successor to assume such obligations shall constitute a material breach of this Agreement.

21. Attorneys' Fees. The Company will pay on the Executive's behalf the reasonable legal fees incurred by the Executive in connection with the negotiation of this Agreement in an amount not to exceed $7,500.

[Remainder of page intentionally left blank. Signature page follows.]

IN WITNESS WHEREOF, the parties have executed this Agreement effective on the date and year first above written.

CRISPR THERAPEUTICS, INC.

By: /s/ Rodger Novak
Its: CEO

EXECUTIVE

/s/ Samarth Kulkarni
Samarth Kulkarni

EXHIBIT A

Employee Proprietary Information and Inventions Agreement

EXHIBIT 10.13

AMENDED AND RESTATED EMPLOYMENT AGREEMENT

This Amended and Restated Employment Agreement ("Agreement") is made this 6th day of October, 2016, between CRISPR Therapeutics, Inc., a Delaware corporation (the "Company"), and Sven Ante Lundberg, MD, an individual with a principal residence at [—] (the "Executive" and, together with the Company, the "Parties" or each individually, a "Party").

WHEREAS, upon completion of the first underwritten public offering of the equity securities of Parent under the Securities Act of 1933, as amended (the "IPO"), CRISPR Therapeutics AG ("Parent") will be subject to the Swiss Ordinance act against excessive compensation in listed companies;

WHEREAS, the Company and the Executive are parties to that Employment Agreement dated February 18, 2015 (the "Prior Agreement"), and desire to amend and restate the Prior Agreement in its entirety, effective upon and subject to the consummation of the IPO (the "Effective Date") on the terms contained herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Position and Duties. During the period which the Executive is employed pursuant to the Prior Agreement and this Agreement (the "Employment Period"), the Executive shall serve as the Chief Scientific Officer of the Company, and shall have responsibilities and duties consistent with such position and such other responsibilities and duties which are not inconsistent with the Executive's skills and experience or his ability to discharge his responsibilities as Chief Scientific Officer as may from time to time be prescribed by the Chief Executive Officer of the Company (the "CEO"). The Executive shall devote the Executive's full working time and efforts to the business and affairs of the Company. Notwithstanding the foregoing, the Executive may engage in charitable or other community activities, as long as such services and activities are disclosed to the Board of Directors of Parent (the "Board") and do not materially interfere with the Executive's performance of the Executive's duties to the Company as provided in this Agreement. During the Employment Period, the Executive's principal place of employment will be in the Greater Boston, Massachusetts area; however, the Company may require the Executive to travel temporarily to other locations in connection with the Company's business.

2. Compensation and Related Matters.

(a) Base Salary. During the Employment Period, the Company shall pay the Executive, as compensation for the performance of the Executive's duties and obligations under this Agreement, an annual base salary of $350,000, payable in a manner that is consistent with the Company's usual payroll practices for senior executives. The Executive's Base Salary shall be reviewed annually by the Board or the Compensation, Nomination and Corporate Governance Committee of the Board (the "Committee") for adjustment. Such adjustment, if any, shall be within the sole discretion of the Board or, to the extent delegated by the Board, the Committee. The annual

base salary in effect at any given time is referred to herein as "Base Salary." The Base Salary shall not be reduced at any time without the express written consent of the Executive.

(b) Annual Bonus. During the Employment Period, the Executive shall be eligible to receive an annual target bonus (a "Bonus") if, as reasonably determined by the Board or, to the extent delegated by the Board, the Committee one or more of the performance targets annually determined by the Board or the Committee ("Performance Targets") is achieved. If all of the Performance Targets are achieved, the Bonus will equal not less than 40 percent of the Executive's Base Salary (the "Target Bonus"). In the event that less than all of the Performance Targets are met by Executive, the Bonus paid in respect of this paragraph may be less than the Target Bonus. Except as set forth in Section 3(b)(ii) or 5(a) hereof, the Executive must be employed by the Company on the day any such earned Bonus is paid which shall be not later than 2 ½ months after the end of each calendar year. The Executive's target bonus opportunity as a percentage of Base Salary may be reviewed periodically and adjusted in the sole discretion of the Board or, to the extent delegated by the Board, the Committee. After any such adjustment, the term "Target Bonus" shall refer to the increased amount. The Target Bonus shall not be reduced at any time without the express prior written consent of the Executive.

(c) Equity Compensation. The Executive shall be eligible to participate in Parent's equity incentive plan according to its terms and conditions, as defined by Parent from time to time in its sole discretion. Both entitlement to any equity awards and the amount shall be determined by Parent in its sole discretion.

(d) Expenses. During the Employment Period, the Executive shall be entitled to receive reimbursement for all reasonable expenses incurred by him in performing services hereunder, in accordance with the policies and procedures then in effect and established by the Company for its senior executive officers.

(e) Other Benefits. During the Employment Period, the Executive shall be entitled to participate in or receive benefits under any employee benefit plan or arrangement currently maintained or which may, in the future, be made available by the Company generally to its executives and key management employees, subject to and on a basis consistent with the terms, conditions and overall administration of such plan or arrangement. Any payments or benefits payable to the Executive under a plan or arrangement referred to in this Section 2(e) in respect of any calendar year during which the Executive is employed by the Company for less than the whole of such year shall, unless otherwise provided in the applicable plan or arrangement, be prorated in accordance with the number of days in such calendar year during which the Executive is so employed. Should any such payments or benefits accrue on a fiscal (rather than calendar) year, then the proration in the preceding sentence shall be on the basis of a fiscal year rather than calendar year.

(f) Vacations. The Executive shall be entitled to accrue up to 25 paid vacation days in each year, which shall be accrued ratably. In other respects, the Company's vacation policy as the same may then be in effect shall apply to vacations.

(g) Legal Fees. Not later than 30 days after the effectiveness of this Agreement, the Company will reimburse the Executive for reasonable and necessary legal fees, not to exceed $7,500, incurred by the Executive in connection with the negotiation of this Agreement.

(h) Approval by Shareholders' Meeting and Mandatory Law. Any compensation (including bonus, equity awards and fringe benefits) to be paid under this Agreement, is, to the extent required by Swiss laws and the Parent's Article of Association, subject to approval by the general meeting of shareholders' of Parent. In the event of a conflict between the Agreement and applicable mandatory Swiss law, the Company shall work with Executive to determine a mutually agreeable modification of the Agreement to the extent necessary to comply with mandatory law with immediate effect.

3. Termination.

(a) General. The Executive's employment shall continue until it is terminated in accordance with this Agreement. Upon service of a Notice of Termination (as defined below), the Executive shall resign from all offices and functions assumed in relation to this Agreement effective upon first request of the Company.

(b) Termination by the Company without Cause or by Executive for Good Reason; Notice Period. In the event that the Company elects to terminate the Executive's employment without Cause (as defined below) or the Executive elects to resign from Executive's employment with Good Reason (as defined below) (in either case an "Involuntary Departure"), the Party electing to end the employment relationship shall provide the other Party with a Notice of Termination (as defined below) of the Involuntary Departure specifying a notice period (the "Notice Period") of six (6) months, effective as per the end of a calendar month; provided that, in the case that the Notice of Termination of an Involuntary Departure is provided within the 18 month period following a Change in Control (the "Change in Control Period" or "CIC Period"), then the Notice Period shall be 12 months; and further provided that, in the event Executive has remained employed by the Company or its successor for the first six months of a CIC Period, any termination by Executive of his employment for any or no reason during the remainder of such CIC Period, shall be treated for purposes of this Agreement as an Involuntary Departure.

(i) During the Notice Period following a Notice of Termination of an Involuntary Departure, the Executive shall continue to be available to provide services to the extent requested by the Company or the Board, provided at any time during the Notice Period the Company may replace the Executive's position and/or direct the Executive to perform other or reduced work; provided further that, upon the 15th day following such Notice of Termination (or such earlier date as the Company shall determine in its sole discretion), the Company shall release the Executive from his working obligations pursuant to Section 3(b)(i) (except to the extent the parties otherwise agree) and place the Executive on garden leave for the remainder of the Notice Period ("Garden Leave"). During such Garden Leave, the Executive (A) may enter into consulting arrangements and accept board positions provided such outside business activities do not interfere with Executive's obligations under this Agreement including without limitation, pursuant to Section 7 and (B) shall be free to engage in other employment provided that such employment does not interfere with Executive's obligations under this Agreement including without limitation, pursuant to Section 7. The Company shall be prohibited during the Garden Leave from reducing any compensation to which the Executive is entitled to receive during the remainder of the Notice Period pursuant to Section 3(b)(ii).

(ii) With respect to compensation during the Notice Period following a Notice of Termination of an Involuntary Departure, and subject to (i) the Executive signing, within 30 days following the date that the Notice of Termination is given, a Release of Claims in a form reasonably required by the Company (the "Release") and (ii) Section 6, the Executive: (A) shall continue to receive the Base Salary and employee benefits consistent with the Company's then existing benefits plans and programs; (B) shall be entitled to receive an amount equal to the Target Bonus with respect to the Notice Period (i.e., a prorated Target Bonus based upon the number of days in the applicable Notice Period), which amount shall be payable no more than 60 days after the Notice of Termination (provided that if the 60-day period begins in one calendar year and ends in a second calendar year, such Target Bonus shall be paid in the second calendar year); (C) shall continue to vest through the last day of the Notice Period in any equity awards outstanding as of the date the Notice of Termination is given; provided, and notwithstanding the foregoing, Section 5(a) may apply if the Notice of Termination of an Involuntary Departure occurs during a CIC Period and (D) shall not continue to accrue vacation under Section 2(f).

(iii) If during the Notice Period following a Notice of Termination of an Involuntary Departure, the Company terminates the Executive's employment for Cause, then the Company shall provide a restated Notice of Termination and the Notice Period shall end on the earlier date set forth in the restated Notice of Termination.

(c) Death. The Executive's employment hereunder shall terminate upon his death.

(d) Disability. The Company may terminate the Executive's employment if the Executive is disabled and unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation for a period of 180 days (which need not be consecutive) in any 12-month period. If any question shall arise as to whether during any period the Executive is disabled so as to be unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation, the Executive may, and at the request of the Company shall, submit to the Company a certification in reasonable detail by a physician mutually acceptable to Executive and Company as to whether the Executive is so disabled or how long such disability is expected to continue, and such certification shall for the purposes of this Agreement be conclusive of the issue. If the Executive and the Company cannot agree as to a qualified physician, each shall appoint such a physician and those two physicians shall select a third who shall make such determination in writing. The determination of disability made in writing to the Company and the Executive shall be final and conclusive for all purposes of this Agreement. The Executive shall cooperate with any reasonable request of the physician in connection with such certification. Nothing in this Section 3(d) shall be construed to waive the Executive's rights, if any, under existing law including, without limitation, the Family and Medical Leave Act of 1993, 29 U.S.C. §2601 *et seq*. and the Americans with Disabilities Act, 42 U.S.C. §12101 *et seq.*

(e) Termination by Company for Cause. The Company may terminate the Executive's employment hereunder for Cause.

(f) Termination by the Executive Without Good Reason. The Executive may terminate his employment hereunder at any time without Good Reason.

(g) Definitions:

(i) Cause. For purposes of this Agreement, "Cause" shall mean: (i) conduct by the Executive constituting a material act of misconduct in connection with the performance of the Executive's duties that results in material harm to the Company, including, without limitation, misappropriation of funds or property of the Company or any of its subsidiaries or affiliates other than the occasional, customary and de minimis use of Company property for personal purposes; (ii) the Executive's indictment for, conviction of or plea of guilty or nolo contendre to (A) any felony; or (B) a misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) continued non-performance by the Executive of the Executive's material responsibilities hereunder (other than by reason of the Executive's physical or mental illness, incapacity or disability) which has continued for more than 30 days following written notice of such non-performance from the CEO; (iv) a breach by the Executive of any of the material provisions contained in Section 7 of this Agreement or the material obligations arising pursuant to the Confidentiality and Assignment Agreement (as hereinafter defined); (v) a material violation by the Executive of any of the Company's written employment policies, which if possible to cure is not cured within 30 days following written notice of such violation; or (vi) failure to cooperate with a bona fide internal investigation or an investigation by regulatory or law enforcement authorities, after being instructed by the Company to cooperate, or the willful destruction or failure to preserve documents or other materials known to be relevant to such investigation or the inducement of others to fail to cooperate or to produce documents or other materials in connection with such investigation; provided that the exercise by Executive of his rights under the United States Constitution shall not constitute a breach of this subsection (vi).

(ii) Good Reason. For purposes of this Agreement, "Good Reason" shall mean that the Executive has complied with the "Good Reason Process" (hereinafter defined) following the occurrence of any of the following events: (i) a material diminution in the Executive's responsibilities, authority or duties; (ii) a reduction in Base Salary or Target Bonus which has not been consented to by the Executive; (iii) a material change in the principal geographic location at which the Executive provides services to the Company outside of the Greater Boston, Massachusetts area; or (iv) the material breach of this Agreement by the Company (each a "Good Reason Condition"). Good Reason Process shall mean that (i) the Executive reasonably determines in good faith that a Good Reason Condition has occurred; (ii) the Executive notifies the Company in writing of the occurrence of the Good Reason Condition within 90 days of the occurrence of such condition; (iii) the Executive cooperates in good faith with the Company's efforts, for a period not less than 30 days following such notice (the "Cure Period"), to remedy the Good Reason Condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) the Executive terminates employment within 60 days after the end of the Cure Period. If the Company cures the Good Reason Condition during the Cure Period, Good Reason shall be deemed not to have occurred.

(iii) Notice of Termination. Except for termination as specified in Section 3(c), any termination of the Executive's employment by either the Company or the Executive shall be communicated by written Notice of Termination to the other party hereto. For purposes of this Agreement, a "Notice of Termination" shall mean a notice which shall indicate the specific termination provision in this Agreement relied upon.

(iv) Date of Termination. For purposes of this Agreement, "Date of Termination" shall mean: (i) if the Executive's employment is terminated by death, the date of death; (ii) if the Executive's employment is terminated on account of disability under Section 3(d) or by the Company for Cause under Section 3(e), the date on which Notice of Termination is given; (iii) if the Executive's employment terminates as a result of an Involuntary Departure under Section 3(b), the last day of the Notice Period; (iv) if the Executive's employment is terminated by the Executive under Section 3(f) without Good Reason, 30 days after the date on which a Notice of Termination is given (unless the Company waives all or part of the thirty (30) day period).

4. Compensation Upon Termination. If the Executive's employment with the Company is terminated for any reason, the Company shall pay or provide to the Executive (or to the Executive's authorized representative or estate) (i) any Base Salary earned through the Date of Termination; (ii) unpaid expense reimbursements (subject to, and in accordance with Section 2(d) of this Agreement); (iii) subject to Section 3(b)(ii)(D), unused vacation that accrued through the Date of Termination; and (iv) any vested benefits the Executive may have under any employee benefit plan of the Company through the Date of Termination, which vested benefits shall be paid and/or provided in accordance with the terms of such employee benefit plans (together, the "Accrued Benefit") on or before the time required by law but in no event more than 30 days after the Executive's Date of Termination.

5. Change in Control.

(a) Acceleration of Vesting. In the event a Notice of Termination of an Involuntary Termination occurs during the CIC Period, and subject to the Executive signing, within 60 days following the Notice of Termination, a Release and the Release becoming effective and non-revocable within such 60-day period, all stock options and stock-based awards held by the Executive as of the date of the Notice of Termination, shall vest and become exercisable or nonforfeitable. Notwithstanding the foregoing, if, at the time of a Change in Control, the Company determines in its sole discretion, in reliance upon an opinion of counsel in form and substance satisfactory to the Company, that the acceleration in the prior sentence would not be permissible under applicable law, then in lieu of the acceleration in the prior sentence, all stock options and stock-based awards held by the Executive as of the date of such Change in Control, shall vest and become exercisable or nonforfeitable as of the date of such Change in Control.

(b) Excise Tax.

(i) Anything in this Agreement to the contrary notwithstanding, in the event that any compensation, payment or distribution by the Company to or for the benefit of the Executive, whether paid or payable or distributed or distributable pursuant to the terms of

this Agreement or otherwise (the "Parachute Payments"), would be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), the following provisions shall apply:

(A) If the Parachute Payments, reduced by the sum of (1) the Excise Tax and (2) the total of the Federal, state, and local income and employment taxes payable by the Executive on the amount of the Parachute Payments which are in excess of the Threshold Amount, are greater than or equal to the Threshold Amount, the Executive shall be entitled to the full benefits payable under this Agreement.

(B) If the Threshold Amount is less than (x) the Parachute Payments, but greater than (y) the Parachute Payments reduced by the sum of (1) the Excise Tax and (2) the total of the Federal, state, and local income and employment taxes on the amount of the Parachute Payments which are in excess of the Threshold Amount, then the Parachute Payments shall be reduced (but not below zero) to the extent necessary so that the sum of all Parachute Payments shall not exceed the Threshold Amount. In such event, the Parachute Payments shall be reduced in the following order: (1) cash payments not subject to Section 409A of the Code; (2) cash payments subject to Section 409A of the Code; (3) equity-based payments and acceleration; and (4) non-cash forms of benefits. To the extent any payment is to be made over time (*e.g.*, in installments, etc.), then the payments shall be reduced in reverse chronological order.

(ii) For the purposes of this Section 5(c), "Threshold Amount" shall mean three times the Executive's "base amount" within the meaning of Section 280G(b)(3) of the Code and the regulations promulgated thereunder less one dollar ($1.00); and "Excise Tax" shall mean the excise tax imposed by Section 4999 of the Code, and any interest or penalties incurred by the Executive with respect to such excise tax.

(iii) All calculations and determinations under Sections 5(c)(i) and 5(c)(ii) shall be made by an independent accounting firm or independent tax counsel appointed by the Company (the **"**Tax Counsel**"**) whose determinations shall be conclusive and binding on the Company and the Executive for all purposes. For purposes of making the calculations and determinations required by Sections 5(c)(i) and 5(c)(ii), the Tax Counsel may rely on reasonable, good faith assumptions and approximations concerning the application of Section 280G and Section 4999 of the Code. The Company and the Executive shall furnish the Tax Counsel with such information and documents as the Tax Counsel may reasonably request in order to make its determinations under Sections 5(c)(i) and 5(c)(ii). The Company shall bear all costs the Tax Counsel may reasonably incur in connection with its services.

(c) Definitions. For purposes of this Section 5, "Change in Control" shall mean any of the following:

(i) any "person," as such term is used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended (the "Act") (other than Parent, any of its subsidiaries, or any trustee, fiduciary or other person or entity holding securities under any employee benefit plan or trust of Parent or any of its subsidiaries), together with all "affiliates" and "associates" (as such terms are defined in Rule 12b-2 under the Act) of such person, shall

become the "beneficial owner" (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, of securities of Parent representing 50 percent or more of the combined voting power of the Company's then outstanding securities having the right to vote in an election of the Board ("Voting Securities") (in such case other than as a result of an acquisition of securities directly from Parent); or

(ii) the date a majority of the members of the Board is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of the Board before the date of the appointment or election; or

(iii) the consummation of (A) any consolidation or merger of Parent where the stockholders of Parent, immediately prior to the consolidation or merger, would not, immediately after the consolidation or merger, beneficially own (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, shares representing in the aggregate more than 50 percent of the voting shares of the company issuing cash or securities in the consolidation or merger (or of its ultimate parent corporation, if any), or (B) any sale or other transfer (in one transaction or a series of transactions contemplated or arranged by any party as a single plan) of all or substantially all of the assets of Parent.

Notwithstanding the foregoing, a "Change in Control" shall not be deemed to have occurred for purposes of the foregoing clause (i) solely as the result of an acquisition of securities by Parent which, by reducing the number of shares of Voting Securities outstanding, increases the proportionate number of Voting Securities beneficially owned by any person to 50 percent or more of the combined voting power of all of the then outstanding Voting Securities; provided, however, that if any person referred to in this sentence shall thereafter become the beneficial owner of any additional shares of Voting Securities (other than pursuant to a stock split, stock dividend, or similar transaction or as a result of an acquisition of securities directly from Parent) and immediately thereafter beneficially owns 50 percent or more of the combined voting power of all of the then outstanding Voting Securities, then a "Change in Control" shall be deemed to have occurred for purposes of the foregoing clause (i). For the avoidance of doubt, a migratory merger of Parent for the principal purpose of redomiciling Parent shall not constitute a Change in Control.

6. Section 409A.

(a) Anything in this Agreement to the contrary notwithstanding, if at the time of the Executive's separation from service within the meaning of Section 409A of the Code, the Company determines that the Executive is a "specified employee" within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that the Executive becomes entitled to under this Agreement on account of the Executive's separation from service would be considered deferred compensation subject to the 20 percent additional tax imposed pursuant to Section 409A(a) of the Code as a result of the application of Section 409A(a)(2)(B)(i) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after the Executive's separation from service, or (B) the Executive's death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the

installments shall be payable in accordance with their original schedule. Solely for purposes of Section 409A of the Code, each installment payment under this Agreement is considered a separate payment.

(b) All in-kind benefits provided and expenses eligible for reimbursement under this Agreement shall be provided by the Company or incurred by the Executive during the time periods set forth in this Agreement. All reimbursements shall be paid as soon as administratively practicable, but in no event shall any reimbursement be paid after the last day of the taxable year following the taxable year in which the expense was incurred. The amount of in-kind benefits provided or reimbursable expenses incurred in one taxable year shall not affect the in-kind benefits to be provided or the expenses eligible for reimbursement in any other taxable year. Such right to reimbursement or in-kind benefits is not subject to liquidation or exchange for another benefit.

(c) To the extent that any payment or benefit described in this Agreement constitutes "non-qualified deferred compensation" under Section 409A of the Code, and to the extent that such payment or benefit is payable upon the Executive's termination of employment, then such payments or benefits shall be payable only upon the Executive's "separation from service." The determination of whether and when a separation from service has occurred shall be made in accordance with the presumptions set forth in Treasury Regulation Section 1.409A-1(h).

(d) The parties intend that this Agreement will be administered in accordance with Section 409A of the Code. To the extent that any provision of this Agreement is ambiguous as to its compliance with Section 409A of the Code, the provision shall be read in such a manner so that all payments hereunder comply with Section 409A of the Code. The parties agree that this Agreement may be amended, as reasonably requested by either party, and as may be necessary to fully comply with Section 409A of the Code and all related rules and regulations in order to preserve the payments and benefits provided hereunder without additional cost to either party.

(e) The Company makes no representation or warranty and shall have no liability to the Executive or any other person if any provisions of this Agreement are determined to constitute deferred compensation subject to Section 409A of the Code but do not satisfy an exemption from, or the conditions of, such Section.

7. Proprietary Information, Noncompetition and Cooperation.

(a) Restrictive Covenants and Assignment of Inventions. The Executive has previously entered into the Confidentiality, Assignment, Noncompetition and Nonsolicitation Agreement as of February 18, 2015 (the "Confidentiality and Assignment Agreement"), attached hereto as Exhibit A, and except as expressly modified herein agrees to continue to honor the obligations and restrictive covenants set forth in the Confidentiality and Assignment Agreement, the terms of which are incorporated by reference as material terms of this Agreement.

(b) Non-Competition and Non-Solicitation. Section 7 of the Confidentiality and Assignment Agreement is hereby deleted and in substitution therefore the following is agreed.

In order to protect the Company's proprietary information and good will, during the Executive's employment with the Company and for a period of twelve (12) months following (i) the delivery of a

Notice of Termination, in the case of an Involuntary Departure or (ii) the termination of the Executive's employment for any other reason (the "Restricted Period"), the Executive will not directly or indirectly, whether as owner, partner, shareholder, director, manager, consultant, agent, employee, co-venturer or otherwise, engage, participate or invest in any Competing Business. For purposes hereof, the term "Competing Business" shall mean any entity engaged in the discovery, development or commercialization of CAS9 technology for human therapeutics. Notwithstanding the foregoing, nothing contained hereinabove or hereinbelow shall be deemed to prohibit the Executive from (i) acquiring, solely as an investment, shares of capital stock (or other interests) of any corporation (or other entity) not exceeding 2% of such corporation's (or other entity's) then outstanding shares of capital stock (or equity interest), or (ii) working for a line of business, division or unit of a larger entity that competes with the Company as long as the Executive's activities for such line of business, division or unit do not involve work by the Executive on matters that are directly competitive with the Company's business. In addition, during the Restricted Period, the Executive will not, directly or indirectly, in any manner, other than for the benefit of the Company (i) divert or take away customers of the Company or any of its suppliers; and/or (ii) solicit, entice, attempt to persuade any other employee or consultant of the Company to leave the Company for any reason (other than the termination of subordinate employees undertaken in the course of my employment with the Company). The Executive acknowledges and agrees that if the Executive violates any of the provisions of this paragraph 7(b), the running of the Restricted Period will be extended by the time during which the Executive engages in such violation(s).

(c) Litigation and Regulatory Cooperation. During and after the Executive's employment, the Executive shall use reasonable efforts to cooperate with the Company in the defense or prosecution of any claims or actions now in existence or that may be brought in the future against or on behalf of the Company that relate to events or occurrences that transpired while the Executive was employed by the Company. The Executive's cooperation in connection with such claims or actions shall include, but not be limited to, being available to meet with counsel to prepare for discovery or trial and to act as a witness on behalf of the Company at mutually convenient times. During and after the Executive's employment, the Executive shall use reasonable efforts to cooperate with the Company in connection with any investigation or review of any federal, state or local regulatory authority as any such investigation or review relates to events or occurrences that transpired while the Executive was employed by the Company. The Company shall reimburse the Executive for any reasonable out-of-pocket expenses incurred in connection with the Executive's performance of obligations pursuant to this Section 7(b).

(d) Injunction. The Executive agrees that it would be difficult to measure any damages caused to the Company that might result from any breach by the Executive of the promises set forth in this Section 7 and the Confidentiality and Assignment Agreement, and that in any event money damages would be an inadequate remedy for any such breach. Accordingly, subject to Section 8 of this Agreement, the Executive agrees that if the Executive breaches, or proposes to breach, any portion of this Agreement and the Confidentiality and Assignment Agreement, the Company shall be entitled, in addition to all other remedies that it may have, to an injunction or other appropriate equitable relief to restrain any such breach without showing or proving any actual damage to the Company.

(e) Protected Reporting; Defend Trade Secrets Act Immunity. Nothing in this Agreement or the Confidentiality and Assignment Agreement, and nothing in any policy or procedure, in any other confidentiality, employment, separation agreement or in any other document or communication from the Company limits the Executive's ability to file a charge or complaint with any government agency concerning any acts or omissions that the Executive may believe constitute a possible violation of federal or state law or making other disclosures that are protected under the whistleblower provisions of applicable federal or state law regulation or affects the Executive's ability to communicate with any government agency or otherwise participate in any investigation or proceeding that may be conducted by a government agency, including by providing documents or other information, without notice to the Company. In addition, for the avoidance of doubt, pursuant to the federal Defend Trade Secrets Act of 2016, the Executive shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that (i) is made (A) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (B) solely for the purpose of reporting or investigating a suspected violation of law; or (ii) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

8. Arbitration of Disputes. Any controversy or claim arising out of or relating to this Agreement or the breach thereof or otherwise arising out of the Executive's employment or the termination of that employment (including, without limitation, any claims of unlawful employment discrimination whether based on age or otherwise) shall, to the fullest extent permitted by law, be settled by arbitration in any forum and form agreed upon by the parties or, in the absence of such an agreement, under the auspices of the American Arbitration Association ("AAA") in Boston, Massachusetts in accordance with the Employment Arbitration Rules of the AAA, including, but not limited to, the rules and procedures applicable to the selection of arbitrators. In the event that any person or entity other than the Executive or the Company may be a party with regard to any such controversy or claim, such controversy or claim shall be submitted to arbitration subject to such other person or entity's agreement. Judgment upon the award rendered by the arbitrator may be entered in any court having jurisdiction thereof. This Section 8 shall be specifically enforceable. Notwithstanding the foregoing, this Section 8 shall not preclude either party from pursuing a court action for the sole purpose of obtaining a temporary restraining order or a preliminary injunction in circumstances in which such relief is appropriate; provided that any other relief shall be pursued through an arbitration proceeding pursuant to this Section 8.

9. Consent to Jurisdiction. To the extent that any court action is permitted consistent with or to enforce Section 8 of this Agreement, the parties hereby agree that the Middlesex County Superior Court of The Commonwealth of Massachusetts shall have exclusive jurisdiction of such dispute. Accordingly, with respect to any such court action, the Executive submits to the personal jurisdiction of such courts.

10. Benefits Continuation. In the event of an Involuntary Termination, subject to the Executive's copayment of premium amounts at the active employees' percentage rate, the Company shall pay the remainder of the premiums for the Executive's participation in the Company's group health plans; provided that the Company's payment obligation shall cease upon the earlier of: (i) 18 months following the Notice of Termination; (ii) the date the Executive obtains other employment offering employee benefits that are substantially similar to the benefits offered by the Company as of

the Notice of Termination; or (iii) the expiration of the Executive's rights under the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"). As a condition of eligibility for such payments, the Executive shall promptly respond fully to any reasonable inquiries related to COBRA eligibility.

11. Integration. This Agreement and the Confidentiality and Assignment Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements, including the Prior Agreement, between the Parties concerning such subject matter.

12. Withholding. All payments made by the Company to the Executive under this Agreement shall be net of any tax or other amounts required to be withheld by the Company under applicable law.

13. Successor to the Executive. This Agreement shall inure to the benefit of and be enforceable by the Executive's personal representatives, executors, administrators, heirs, distributees, devisees and legatees. In the event of the Executive's death after his termination of employment but prior to the completion by the Company of all payments due him under this Agreement, the Company shall continue such payments to the Executive's beneficiary designated in writing to the Company prior to his death (or to his estate, if the Executive fails to make such designation).

14. Enforceability. If any portion or provision of this Agreement (including, without limitation, any portion or provision of any section of this Agreement) shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

15. Survival. The provisions of this Agreement and the Confidentiality and Assignment Agreement shall survive the termination of this Agreement and/or the termination of the Executive's employment to the extent necessary to effectuate the terms contained herein.

16. Waiver. No waiver of any provision hereof shall be effective unless made in writing and signed by the waiving party. The failure of any party to require the performance of any term or obligation of this Agreement, or the waiver by any party of any breach of this Agreement, shall not prevent any subsequent enforcement of such term or obligation or be deemed a waiver of any subsequent breach.

17. Notices. Any notices, requests, demands and other communications provided for by this Agreement shall be sufficient if in writing and delivered in person or sent by a nationally recognized overnight courier service or by registered or certified mail, postage prepaid, return receipt requested, to the Executive at the last address the Executive has filed in writing with the Company or, in the case of the Company, at its main offices, attention of the CEO and a copy of such notice shall be sent to Crispr AG, Attention: Chief Financial Officer, at the main offices of Crispr AG.

18. Amendment. This Agreement may be amended or modified only by a written instrument signed by the Executive and by a duly authorized representative of the Company.

19. Governing Law. This is a Massachusetts contract and shall be construed under and be governed in all respects by the laws of the Commonwealth of Massachusetts, without giving effect to the conflict of laws principles of such Commonwealth. With respect to any disputes concerning federal law, such disputes shall be determined in accordance with the law as it would be interpreted and applied by the United States Court of Appeals for the First Circuit.

20. Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original; but such counterparts shall together constitute one and the same document.

21. Assignment and Transfer by the Company. The Company will have the right to assign and/or transfer this Agreement to its affiliates, successors and assigns. The Executive expressly consents to be bound by the provisions of this Agreement for the benefit of the Company or any parent, subsidiary or affiliate to whose employ the Executive may be transferred without the necessity that this Agreement be re-signed at the time of such transfer.

[Remainder of page intentionally left blank. Signature page follows.]

IN WITNESS WHEREOF, the parties have executed this Agreement effective on the date and year first above written.

CRISPR THERAPEUTICS, INC.

By: /s/ Rodger Novak
Its: CEO

EXECUTIVE

/s/ Sven Ante Lundberg, MD
Sven Ante Lundberg, MD

EXHIBIT A

Confidentiality, Assignment, Non-Competition and Non-Solicitation Agreement

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” and to the use of our report dated May 13, 2016 (except note 17, as to which the date is July 26, 2016) in the Registration Statement (Form S-1) and the related Prospectus of CRISPR Therapeutics AG dated October 7, 2016.

/s/ Ernst & Young LLP

Boston, Massachusetts
October 7, 2016